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ABSTRACT

Curriculum development is an activity that goes on in all school districts, although in some districts it is haphazard and in others it is carefully planned. School district leaders must recognize this situation and take charge of the program to assure that it adheres to high standards. The efforts of each teacher must be "mapped," which means the real curriculum being taught in each classroom must be examined and recorded. This curriculum mapping can be done by having teachers map their own classroom curricula by using such tools as a classroom curriculum mapping worksheet. It can also be done by having observers use tools like an observer form for curricular mapping to record what is being taught in the classroom. The results of this mapping must be the beginning point for making the real curriculum fit the desired curriculum. Curriculum directors, coordinators, supervisors, and other administrative personnel are a vital ingredient in any program of quality control in curriculum development. They are the only ones who can assure the district that the curriculum being taught is the desired curriculum. These administrators must be valued, nurtured, and protected by the superintendent of schools. (Author/JM)

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Quality Control In Curriculum Development

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by

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Foreword

The primary goal of AASA is "to attain comprehensive, accessible, responsive and relevant educational programs." During 1977 the Executive Committee took the following actions to focus the programs, activities, and resources of AASA more sharply on this goal. It

- established within AASA the National Center for the Improvement of Learning (NCIL), employed Fenwick W. English to head it, and assigned appropriate resources to support it
- authorized the Center to establish and conduct an annual convention to deal exclusively with the improvement of learning, to produce publications, training activities, and to perform acts of advocacy for administrators who have curriculum and instruction assignments
- adopted as the official motto—"AASA Leadership for Learning," this statement to become a prominent part of a new AASA logo.

Quality Control in Curriculum Development is the first effort of AASA/NCIL to assume its assigned role in the area of publications. In it the author puts forth several imperatives for your consideration. They are:

- that curriculum development is an ongoing program in all school districts either by accident or design
- that the leadership of school districts must recognize this phenomenon and take charge of the program to assure that it performs to high standards
- that in order to determine the "real curriculum" which exists in the schoolrooms of the district the efforts of each teacher must be "mapped," the results of this mapping to be the beginning point for making the real curriculum fit the desired curriculum
- that curriculum directors, coordinators, supervisors and other administrative personnel are a vital ingredient in any program of quality control in curriculum development. They are the only ones who can assure the district that the curriculum desired is the one in existence. They must be valued, nurtured, and protected by the superintendent of schools.

It is our belief that *Quality Control in Curriculum Development* is one of a series of efforts by AASA-NCIL which demonstrates "Leadership for Learning."

Paul B. Salmon
Executive Director

Introduction

One of the major purposes of the AASA National Center for the Improvement of Learning is to develop a body of literature regarding the management of curriculum and instruction in the nation's schools. Much has happened to change the operational climate in the schools for administrators at all levels, from superintendents to subject area supervisors. Declining enrollment, staff layoffs, the minimum competency movement and local resistance to finance increased educational costs present school people with a new sense of urgency.

It is hoped that practitioners concerned about improving the curriculum will find this publication a provocative and useful tool to re-examine current trends to which curriculum development as a process should become responsive. It is hoped that professors will find the publication timely to more fully appreciate contemporary school related problems in responding to public demand for enhanced instructional effectiveness.

We at the National Center for the Improvement of Learning believe that curriculum development is a management function. The curriculum must be viewed as the proper mechanism to deliver improved results of the educational system for all students. Quality control does not mean manipulation, it means direction setting, adjustment where necessary, and results which are cost effective. It is a primary function of management.

The management of curriculum and instruction envisions the classroom teacher as an integral partner in the process of developing more effective curriculum. Management is not the antithesis of labor. It is believed that the schools and the curriculum cannot be substantially improved without incorporating basic quality control as outlined.

I am deeply indebted to the AASA Advisory Panel to NCIL for their support, suggestions, criticisms and guidance. They are Edward Brainard, Professor of Educational Administration at the University of Northern Colorado; Helen Brown, Director of Research and Cur-

riculum, East Baton Rouge Parish Schools, Louisiana; George Iannacone, Superintendent of Schools, Vernon Township Public Schools, New Jersey; Leon Lessinger, Dean, School of Education, University of South Carolina; Idella Moss, Assistant Director, Teacher Education Center, Sarasota, Florida; Donald Mrdjenovich, Superintendent of Schools, Watertown Public Schools, Watertown, Wisconsin; Gilbert Sanchez, Associate Professor of Educational Administration, New York University, Donald Wright, Curriculum Specialist, Montgomery County Intermediate Unit, Pennsylvania; J. Zeb Wright, Coordinator for Continuing Education, Department of Education, State of West Virginia; and James K. Zaharis, Associate Superintendent for Educational Services, Mesa Public Schools, Mesa, Arizona.

Several AASA staff members spent considerable time with the manuscript and made timely and insightful suggestions. They were Richard Chobot, Ronald Kowalski, and Walter Turner. My special appreciation to Executive Director Paul Salmon for his intensive review, criticisms and comments, as well as encouragement from Louis Zeyen for the initial idea. William Henry's incisive editing was the last needed touch. A special note to the continued influence of Roger A. Kaufman at Florida State University regarding basic concepts should also be mentioned.

Whatever shortcomings, oversights, omissions, or errors which may still be present are the responsibilities of the author.

Fenwick W. English
Director
AASA-NCIL
Arlington, Virginia

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The climate for curriculum development in the schools has changed. No longer is it an exclusively professional concern or activity. No longer is the public content to play an outsider's role in what seems to them a paramount hallmark of a good school.[1, 2] The perceived unresponsiveness on the part of school personnel have forced citizens to turn with increasing frequency and urgency to legislatures and other elected officials for help.[3] One result has been the growth of "minimum competency" laws across the nation which has forced upon school districts requirements for developing public plans with assessable objectives, needs assessments, and required parental involvement.[4, 5, 6] Declining enrollment, staff layoffs, school closings and stiffened taxpayer resistence to school levies appear to be coming together in a movement which has been dubbed, "Back to Basics." One of the essential calling cards of that movement is the public outcry regarding the schools classic inability to become more fiscally responsible, more educationally responsive, and categorically more efficient with its resources.

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[1] The "curriculum" was the top response to ten criteria by which the schools at the local level were perceived to be "good," as revealed in the Ninth Annual Gallup Poll of Education. See George H. Gallup, "Ninth Annual Gallup Poll of the Public's Attitudes Toward the Public Schools" *Phi Delta Kappan*, 59:1 (September, 1977) pp. 33-47.

[2] Opinion rendered by several parents at a national meeting on curriculum development. Nel Noddings, "A Report of the NIE Curriculum Development Conference, November 17, 18, 19, 1976, Washington, D.C. Xeroxed. 172 pp.

[3] *Ibid.* p. 24.

[4] According to the Education Commission of the States, some 26 of the States have adopted some form of minimal competency testing. See Chris Pipho," State Activity Minimal Competency Testing," Department of Research and Information, ECS, Denver, Colorado, 7 pp. (Mimeographed) No date.

[5] See "T&E, A Primer for School Improvement in New Jersey," Department of Education, State of New Jersey. Trenton, New Jersey, 44 pp.

[6] See E. W. Kelley, "The Politics of Proficiency," CEMREL (September/October, 1977. Xeroxed, 47 pp.

While educators traditionally have responded to such notions by stating that finances and funding formulae are inadequate[7], this same view is not shared by some sub-publics. Noted a citizens group studying the problems of a large urban school system:

> "There will never be enough resources to fund the many programs available in any large educational system. It will always come down to a system of priorities and a determination of what level of funding is needed for an effective educational system. . . . In our study of public schools several different groups of parents were contacted. During discussions with these groups we noted that seldom was inadequate funding mentioned as a major problem. Discipline, drugs, busing, accountability, etc. yes, but not funding. This leads to the conclusion that at least in the general public view, funding is not a major problem."[8]

It is curriculum then, its shape and substance, its development and evaluation, that has once again emerged as a central concern of citizens and educators. What role does the curriculum play in producing or maintaining quality education? How can it become more responsive to the demands for better differentiation of learners to meet their varying needs? Who is best qualified to deal with curricular issues?

Regardless of the size of the school system, the numbers of staff or financial condition, all are dependent upon the curriculum as a tool to say something important about what should be taught and learned in the schools. Therefore, the improvement of curriculum development as a process and the management of curriculum has to be a central concern of all of those educators involved with its definition, implementation, and evaluation.

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[7] See George Neill, "Education Leaders Disclose Top Issues for 1977-78," in "Washington Report, *Phi Delta Kappan*, 59:3 (November, 1977) pp. 215-216.

[8] Tom Pardue, "Finances," from "Leadership Nashville: A Report by the Education Committee," June 3, 1977, pp. 9 & 11.

Exploring the Concept of Quality Control

Quality control is a time honored concept in management. It traces some of its development to the ideas of Henri Fayol around 1916.[9] Unfortunately as Leon Lessinger notes it has come to mean to many laymen a sort of heavy handed authoritarianism.[10] The notion of quality control applied to school system management and curriculum development is the systematic means by which at designated and appropriate intervals a determination can be made if the system or the curriculum is accomplishing the desired results or outcomes. These means include the possibility of programmatic adjustments so that when the results are obtained, there is a *minimum discrepancy* between the desired outcomes and the actual outcomes. Perkins and Lessinger[11] also add a factor within the concept of quality control, that is, that the results produced, "against agreed upon standards . . ." (will be) "at a cost agreed upon in the budget."[12] Quality control therefore operates within the parameters of purpose, limitations imposed by configuration procedures, and cost calculations.

Lessinger is also quick to point out the difference between quality control and quality assurance. Quality control is *internal*. It is a process employed by school leadership to insure the achievement of the purposes of the system. Quality assurance is *external*. It is objective insurance that a product or service meets some kind of specifications. In this sense the passage of minimum competency legislation is a form of quality assurance, whereas the establishment of a local needs assessment is a process of quality control.[13]

Quality control is part of the overall functions of management. Management has the responsibility for creating parameters by which reality is confronted and processed. The piece of reality processed is part of the definition of scope and purpose of the enterprise. Management has the responsibility of acquiring and configuring the essential resources to accomplish the purposes of the enterprise and it has the

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[9]Henri Fayol. *General and Industrial Management*, Constance Storrs (trans.) (London: Sir Isaac Pitman and Sons, 1949) as cited in Leon Lessinger, "Quality Control and Quality Assurance in Education," *Journal of Education Finance* (1) (Spring, 1976) pp. 503-515.

[10]Lessinger, *Ibid.*

[11]J. A. Perkins, Jr. and Leon M. Lessinger, "Making The Schools Accountable for What Children Learn," *World*, Peat, Marwick, Mitchell and Company, Spring, 1977. pp. 36-39.

[12]*Ibid.* p. 38.

[13]See Fenwick W. English and Roger A. Kaufman. *Needs Assessment: A Focus for Curriculum Development* (Washington, D.C. Association for Supervision and Curriculum Development, 1975).

responsibility to insure that those purposes are realized.[14] The application of the concept entails a different view of the instructional process than has been dominant in many school systems today, particularly within middle management. The two contrasting views have been called the "non-discrete view" and the "finite view."[15]

Those adhering to the non-discrete view of curriculum see it largely as process with a capital "P." Process is the beginning and the end of instruction. Therefore instruction has no beginning and no end, it simply goes on and on.[16] This may be called "individualized instruction" or "continuous progress learning." What it really means methodologically is that students are farmed out into multi-texts or instructional kits and proceed at their own rate or pace until the end of the year. Whatever they learn is wherever they may happen to stop. Under this umbrella it is not necessary for a teacher to do much planning. There is merely the necessity to sort of manage a continuous interplay of groups as students move in and out of groups. The teacher's role is reduced to a sometime motivator and/or record keeper. Since there are few or no standards for students in terms of outcomes, the process of instruction allows some students to learn a great deal and others to muddle along. Pace is the primary factor in this situation. Questions pertaining to validity of content or learning standards are considered not relevant.

Some teachers have become convinced that this is "good" instruction. There is no requirement for what used to be called "whole class instruction," because there is no longer a "whole class." Such a concept is simply an artificial creation of organizational phenomena. Everybody is simply learning at their own rates. The necessity to single out some learning expectancies as more important than others is considered contrary to the principles of individualized instruction and learning. Furthermore it is "dehumanizing" since it can be shown that few students are ever at the same place at the same time anyway, and one can always find an exception in terms of a success story of a person who didn't learn an "essential."[17] The exception therefore invalidates the rule.

[14] This differs from what has been referred to as "administration." See Roger A. Kaufman and Fenwick W. English. *Needs Assessment: A Guide to Improve School District Management* (Arlington, Virginia: AASA, 1976) 63 pp.

[15] These terms and some of the section which follow have been extrapolated from Fenwick W. English, "Establishing Instructional Priorities," Address before the Montgomery County Curriculum Developers Advisory Council, Pennsylvania. April, 1977 (Xeroxed) 7 pp.

[16] This view has been labeled the "development of cognitive processes approach". See Elliot W. Eisner and Elizabeth Vallance. *Conflicting Conceptions of Curriculum* (Berkeley, California: McCutchan Publishing Corporation, 1974) pp. 5-7.

[17] See also George Weber, "The Cult of Individualized Instruction," *Educational Leadership* (February, 1977) pp. 326-329.

The finite view of the classroom and curriculum is quite different. It conceptualizes the classroom as a place in which a valid series of learner outcomes can be formulated and these can be translated into measurable results. The teacher is then expected to plan a series of discrete lessons or *interventions* in which the focus of the class, groups, or individuals is shared momentarily upon the acquisition of a concept, fact, attitude, and/or the development of an array of psychomotor skills. The teacher is expected to have some knowledge about how to do this, that is, move from a set of finite objectives to results (learning). It can be argued that individualized instruction is simply not possible if objectives are not established which are assessable. The intervention of the teacher occurs as he or she helps the student move towards the accomplishment of an objective. To do this the teacher must know the student, have performed some diagnosis, and formulated a series of teaching moves or strategies to correct or change any or all of them. That is individualized instruction and it doesn't necessarily occur one on one. It can occur in groups, even large groups.

Under the non-discrete view of instruction, it is often impossible to know what to do with a student who doesn't learn except to excuse a lack of learning as the child's fault (he or she wasn't ready) the family's fault (unrealistic expectations or lack of proper home environment) or label the child (such as disadvantaged, reluctant, disabled, etc.) It's impossible to improve this kind of instruction because it just goes on and it goes no place in particular. Vague phrases hide the fact that almost any outcome will suffice to justify the instructional process continuing to exist. This is based upon the assumption that any outcome is essentially correct and acceptable.

A teacher functioning within this context has no responsibility or accountability for taking a child or a group of children anywhere. There can be no a priori set of objectives, no minimal competencies, no base line, no standards or expectations. Such things are considered barriers to effective instructional individualization. Teachers therefore have few actual planning responsibilities, bypass any great diagnostic chores, and become record keepers for students traversing through kits and levels.

The "finite" view assumes a base line against which teachers perform diagnosis and accept a responsibility for developing interventions which increase the probability that learning will occur.[18] The teacher is clearly in command of the means to obtain the learning desired. The classroom is considered the sum totality of possible interventions which will assist the learner to acquire the desired outcomes.

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[18]See also Fenwick W. English, "Provision of Instruction," *New York State School Boards Journal* (August, 1976) pp. 20-21.

The teacher is expected to know how to and to be able to exercise a range of decisions within the *decision-making space* defined. The term *decision-making space* refers to the actual ability of the decision maker to use data within the real limitations imposed by the system upon the ranges of decisions allowed or acceptable. Data should conform to the requirements of the decision-making space.[19]

The characteristics or criteria by which it can be known if a school system possesses adequate quality control measures in terms of its management of curriculum are applicable to all school districts. The personnel available to define and maintain such control may vary depending upon the system's size. While larger systems may have many more middle management roles at the central level, smaller systems must depend upon the superintendent's leadership as manifested through the building principalship. These characteristics are:

(1) Definition of Results

Effective quality control firmly rests upon developing an adequate description of the educational results desired. If an instructional leader or supervisor is to have responsibility and be accountable for the adequacy of any particularly sub-system or curricular area and/or to perform a range of functions or services, it is imperative to obtain the most complete understanding possible of what the application of those services is supposed to achieve or accomplish.

This in turn is dependent upon an adequate statement of the mission of the school system. In the past there was some disagreement about utilizing pupil outcomes (learning) as the base for determining school system effectiveness. The back to basics movement has dispelled this argument. The governor of Vermont has called for a constitutional convention on education in America. The governor proposed that young people should be assured of basic educational rights so that they would possess "the fundamental skills of communication, challenge and calculation. A second would be to provide them with a sense of history and social perspective of their own culture."[20] The governor of New York called his own State Education Department "a system of colossal arrogance," and termed the commissioner "the king of the last kingdom on earth. I want to see effects and results in the money we're spending. I'm not interested in personalities: I'm in-

[19] See Milbrey W. McLaughlin. *Evaluation and Reform: The Elementary and Secondary Education Act of 1965/Title I* (Cambridge, Massachusetts: Ballinger Publishing Company, 1975) p. 119.

[20] Neal R. Peirce," Constitutional Convention? Evaluating the Educational Process." *The Philadelphia Inquirer*, December 5, 1977. 11-A.

terested in results."[21] The governor was asked if he thought the schools were doing enough. "No, we have children who are graduating from our (grade) schools who cannot read, cannot spell, and cannot add in the ninth grade."[22] The Los Angeles Board of Education has recently funded an independent analysis unit which will operate as a "watchdog" for the board. Funded at the range of $300,000 per year, it is to provide the board with a "wider range of information about how instructional programs are performing, how funds are allocated in the school budget and what alternatives might be considered both in programs offered in the district and spending for a variety of activities."[23] There seems to be little doubt that schools and curriculum are perceived as means to enhance the learning of students and that the lack of adequate performance standards, appropriate monitoring techniques and processes, have been a major barrier to improvement of the management of curriculum.[24]

Adequate quality control in curriculum development must therefore assume or provide for the presence of valid and specific outcomes for the school system. A consensual mechanism for agreeing upon the outcomes or involving students, parents, community, board and staff is clearly preferred over those that do not employ such techniques for reasons of validation as well as simple politics.[25] The use of outcome standards or competencies as they are beginning to be called demand a more accurate description of the existing curriculum. The establishment of competencies to be effective in reflecting real world skills requires the more precise location of the skills across the grades within the school district. Without such location it is impossible to use the data to improve educational performance and to give anything but the most global kind of instructions to concentrate system resources to focus on areas requiring improvement. The global caricature of the curriculum as it is reflected in most curriculum guides is almost totally useless for this purpose.[26]

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[21] Associated Press, "Education System Seen as 'Wasteful.'" Yonkers *Herald Statesman*, September 29, 1976.

[22] *Ibid.*

[23] Jack McCurdy, "L.A. Schools Review Unit Takes Shape." *Los Angeles Times*, April 17, 1977.

[24] Lawrence Feinberg, "Minimum Graduation Skills Drafted by D.C." *Washington Post*, December 10, 1977.

[25] See Fenwick W. English, "The Politics of Needs Assessment," *Educational Technology*, 17:11 (November, 1977) pp. 18-23.

[26] See Fenwick W. English, "Keeping Curriculum Upfront." *PSBA Bulletin* 41:6 (November-December, 1977) p. 38. Resume of speech before the Pennsylvania School Boards Association 1977 Annual Conference, Pittsburgh.

(2) An Accurate Assessment of the Current Curriculum

While many school districts have taken steps to resolve the problem of mission ambiguity, that is explicit purposes not being present as standards or outcomes, very few seem to realize that they do not possess accurate assessments of the current status of affairs. Some large systems have problems in developing an accurate representation of the table of organization let alone an accurate description of prevailing instructional practices or a clear picture of the existing school system curriculum.

The procedure for revealing the existing school system curriculum is called "curriculum mapping." It is this map which serves as the bottom line, the instructional base of the school system. Curriculum maps reveal the real curriculum. Curriculum guides state what the curriculum should be. The curriculum guide is *prescriptive*. A curriculum map is *descriptive*.

To exercise quality control over curriculum requires the instructional leader or supervisor to know what the real curriculum is in his or her subject area. Unless this is known and quantified, it is not possible to understand the existing degree of repetition in the curriculum, the existing gaps or holes in any curricular area that are not being taught, nor is it possible to assess the effectiveness of any given concentration of resources within the curriculum.

Most curriculum guides lack the specificity necessary to help teachers or curriculum planners. Curriculum guides do not represent the actual curriculum applied by individual teachers. The curriculum guide is a fictional curriculum. Quality control must begin with the revelation of the real curriculum. There can be no quality control of curriculum and instruction in a school system unless a fairly accurate picture of the real curriculum can be obtained. It must answer the following questions:

(a) What is being specifically taught?
(b) How much repetition is there within the real curriculum? Is the repetition present planned or does it occur by default?
(c) What is the actual decision-making space of the key persons involved with curriculum development? Superintendent? Assistant Superintendent? Director? Supervisor? Principal? Teacher?
(d) What are the instructional/intervention options open to teachers?
(e) To what degree does the curriculum identify critical concepts, skills, knowledges? How does it focus upon them? What is the overlap between curricular sub-units?
(f) How much variation is present within the existing organizational divisions of the school system which also serve as curricular boundaries? (elementary, junior high, high school for example, or lan-

guage arts, math, science, physical education).

(g) What percentage of the real curriculum is a teacher option? How much do such options create uneven variations across grade levels, divisions, subject areas that in themselves create gaps?

(h) To what extent is the real curriculum content a part of the district's testing program, that is, how much of what is being taught assessed? What part of the current test batteries do not relate to the content in the curriculum guide, but by being taught for the test become part of the real curriculum?

(i) To what extent is the real curriculum cost effective? Does the real curriculum optimize the resources of the system to reach the agreed upon outcomes?[27]

A recent national meeting of university curriculum specialists, association representatives, education lab directors, parents, tried to assess the national status of curriculum development in the United States.[28] From [illegible]s data it was estimated that in 1975, seven publishing firms accounted for approximately 60% of the total instructional industry revenues. It was estimated by one expert that 95% of all classroom time involves the use of textbooks.[29]

Is this the real curriculum of the schools? The experts agreed that they were not sure of the actual quality of the curriculum today in the nation's schools.[30] They also disagreed over the recent impact of curricular reform. Some claim significant successes and others felt there had been little real change. Their collective judgment was:[31] "that new curricular never reached the schools; that ways and means to integrate new curricula into ongoing systems of instruction received too little thought; that the theory and research base for many new programs was insufficient; that introducing new instructional materials alone has little impact; that the goals of curriculum reform did not even address the serious problems of education."

(3) Configuration of Resources

The curriculum as it now exists is *configured*, i.e., shaped by administrative levels, system demarcations, materials, the physical structure of buildings, time delineations (schedules) and teachers, their characteristics, what they select and what they reinforce and do

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[27] See "Accountability" Chapter Twelve in Frank L. Steeves and Fenwick W. English, *Secondary Curriculum for a Changing World* (Columbus, Ohio: Charles E. Merrill, 1978) for the idea of sub-optimization applied to curriculum development.

[28] Jon Schaffarzick and Gary Sykes," NIE's Role in Curriculum Development: Findings, Policy Options, and Recommendations." February 8, 1977. (Mimeographed) 125 pp.

[29] *Ibid.* p. 9.

[30] *Ibid.* p. 26.

[31] *Ibid.* p. 45.

not reinforce. There may be several dominant configurations within the same school or school system.

Upon what assumptions are the existing configurations based? What the instructional leader or supervisor must ask is why this (the existing one) was chosen over all of the other possible ones? (the known alternatives). The present configuration is obviously a solution. Did it spring into existence, did it evolve by default or by plan, or was it defined by a series of actions and choices which have now been forgotten? Was the existing curricular configuration carefully discussed and shaped with public involvement? What can the system do if the current configuration is not working? How would it know if that configuration was not effective?

There should be nothing sacred about the existing configuration of the curriculum. It is an artifact like a school building, school bus, or a playground. There is no curriculum in nature just as one would not expect to find an architect's drawing in some "natural" state.

The curriculum is a means to the desired outcomes, i.e., pupil learning. The curriculum is the planned and defined series of decisions which establish or anticipate the desired outcome or ranges of outcomes to be accomplished within the decision-making space of those responsible to carry it out. The curriculum is *interactive*, that is, it is the sum total of interactions between pupils, teachers, materials, time, and physical settings in the school environment.[32] It is known, knowable, and capable of being improved if it is conceptualized as a series of interim, successive, and continuous decisions, the summary of which is its configuration or shape. A configuration establishes the parameters of what has been selected. A curriculum performs the same function as a budget. It should answer the question of priorities. In instructional terms it answers the question, "Of all the things that could be learned, what are the things that *must* be learned?" It is recognition of the fact that priorities are required because human beings don't live forever and they don't stay in school for more than one-fifth or one-sixth of their expected lifetimes. Finite existence and limited time require prioritization of outcomes. That in turn requires a configuration which seeks the most effective and efficient application of the critical elements interacting to accomplish the desired and validated ends.

While the curriculum cannot be exclusively spontaneous per se, it can include and promote pupil spontaneity within specified ranges of desired outcomes. Curriculum serves as the reference point for

[32] Philip W. Jackson, "The Way Teaching Is," in *The Way Teaching Is* (Washington, D.C. Association for Supervision and Curriculum Development, 1966).

spontaneity and establishes its meaning within a total context.[33] Once spontaneity becomes repetitive it leads to a curriculum, i.e., a decision to repeat a process or course of actions that maximized some desired outcomes, whether self-actualization or learning how to type.[34] A curriculum exists to enhance the probability that what is desired to occur will re-occur with the same or less effort in successive applications than when initially applied. In this sense a curriculum is a symbol of economies of scale of time, energy, and resource utilization in the schools. It is an improvement upon random occurrence or chance.

Quality control must deal directly with the existing curricular configuration and its assumptions. It must attempt to trace them and to state publicly what they are in order to develop public understanding by which the selection process occurs and to be able to retrace the process of decision-making by which the curriculum configuration is then subsequently maintained, changed, or abandoned.

(4) The Presence of a Decision-Making Audit Trail

A decision-making audit trail in curriculum development as a quality control mechanism means that the decisions and assumptions which led a school system or a school to accept or develop or change a given curriculum configuration can be *traced* through the period of evolution to an existing point in time.[35] It means that curriculum decision makers can retrace the assumptions, compare the results produced to the desired results, and find a logical starting point to engage in systematic alterations in the curriculum.

Instructional leaders and supervisors should be able to take the results of an audit trail search and apply them to the selection or rejection of specific content, methods, plot interrelationships or engage in a logical process of changing them. Directions to teachers can then be of the inclusion/exclusion type such as "do this, don't do this," or they can be qualitative/quantitative, such as," do more or less of this." At the present many school systems have difficulty in adequately utilizing test results because they do not know the degree to which the test reflects the existing or *real* curriculum. It is therefore impossible to issue anything but exhortative directions in this state of affairs, or "try harder," or "do better." Under these

[33] Fenwick W. English," Can Spontaneity Serve as a Curriculum Base?" *Educational Technology*, 12:1 (January, 1972) pp. 59-60.

[34] For a different reference point in curriculum conceptualization see William F. Pinar and Madeleine R. Grumet. *Toward a Poor Curriculum* (Dubuque, Iowa: Kendall/Hunt Publishing Company, 1976).

[35] Pinar and Grumet use the autobiographical approach in having an individual student retrace critical assumptions to a point in time. It also brings to the person's consciousness interactions which have been significant. *Ibid.*

circumstances teachers may translate this message as "teach the test."[36, 37] This means that the test makers have written the curriculum and it is the test that has developed the curriculum configuration. The test designed to ascertain the achievement of the desired ends has now become the end itself, a classic problem of substitution in education.

(5) Data Specification, Production, and Utilization

Almost an endless variety of data can be produced about anything. Data required by quality control standards must be developed for decision making purposes. Peter Drucker differentiates between "controls" and "control." Drucker notes that "controls" is not the plural of "control." "Controls" mean measurements and information. "Control" means direction. Lots of information does not provide "control," or in Drucker's words "controls do not provide more control."[38]

Quality control is concerned about direction and results. The *decision making space* assigned to the decision makers must be specified. If certain decisions are required, what kind of data should be gathered? Drucker further notes that information required should relate to the *principle of parsimony*, i.e., the least amount of information required to make the most reasonable determination from it. From this concept data should be generated as a response.

Too often data is useless and offers no help in the decision-making process. Decision makers must specify *a priori* the ranges and types of decisions which are required so that quality control can function all the way through a project or program and that the data produced on an interim basis is useful and germane to the final decision making efforts.

The difference between using data to make decisions and using data to draw conclusions should be clarified. [39] Decisions are *formative* in nature, often they are or can be made without data. Conclusions are *summative*, they represent some final or near final judgment or assessment. A decision represents a partial closure, something that will stand until or unless something better comes along, or until new information is produced. A conclusion is rarely made in education administration/supervision in the practical arena in which

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[36] Junie Brown, "Teacher Claims School Cheated on Test," *Atlanta Journal*, April 27, 1973.

[37] David Vidal, "District in Brooklyn Refuses New Tests," *New York Times*, March 19, 1977.

[38] Peter Drucker. *Management* (New York: Harper and Row, 1974) pp. 494-505.

[39] Jerome A. Popp, "Paradigms in Educational Inquiry," *Educational Theory* 25:1 (Winter, 1975) pp. 28-39, as cited in Richard Kendell and David R. Byrne, "Thinking About the Greenfield-Griffiths Debate," *UCEA Review* 19:1 (October, 1977) pp. 6-16.

Figure 1

Types of Decisions Which Define the Decision Making Space of Instructional Personnel As It Relates to the Management of Curriculum

Decision Type	Decision Content	Decision Data
Policy	—general guidelines for specific instructional/curricular decisions of an inclusion/exclusion basis; defines what will be dealt with as a matter of classification/categorization; (*this* is *that kind* of problem)	—definitive types of data sources such as enabling legislation, judicial opinions, polls or surveys or theoretical schemes
Operational Precedential	—specific decisions about a course of action, a selection, an appropriate combination of actions to obtain desired results (*this* kind of problem requires this *kind* of solution)	—administrative directives—research results which reveal appropriateness of responses in the past to problem —needs assessments —Delphi inquiry/surveys —case studies
Renewal	—decisions about continuation of efforts, changes necessary as the result of application of initial resources, alternations in resource manpower flow (*this* solution *adjusted this* way will reach the defined objectives)	—research on initial outcomes obtained compared to desired outcomes "result proximity" —anecdotal/unobtrusive data which serve as benchmarks towards desired results
Termination	—decisions to abort chosen courses of actions as solutions due to (1) attaining the objectives or (2) chronic inability to attain the objectives even after adjustments based upon feedback (*This* solution has failed to achieve the desired results even after specified programmatic adjustments.)	—administrative directives as political responses —data from research after programmatic adjustments fail to indicate closing the gap between actual and desired results.

most educational managers now find themselves. Reality is so fluid and moving and complex, that conclusions rarely seem appropriate. Here are some of the considerations that seem appropriate in defining a curriculum leader's or instructional supervisor's *decision making space.* (Figure 1)

On paper the delineations between policy and operational decisions can be easily made. Boards of education establish policy. Administrators and supervisors can then carry out or implement three basic types of operational decisions. A board may be committed to having children learn how to read as a goal. The method may be up to the professional staff who may initiate programmatic responses which are then reported and perhaps adjusted or terminated depending upon their success. The board has decided that reading is the desired outcome. The staff defines and implements the proper programmatic response. However, in practice the lines become blurred. Some boards may not have adopted any outcome or results oriented statements. In the absence of clear outcomes the professional staff may create a policy level decision by a series of actions which are related by topic or procedural rule. Standard operating procedures (SOP) based upon precedent often have the function or impact of policy level decisions. Sometimes they may even work contrary to stated policies. Such procedures or rules become guidelines by which problems are classified, sorted, dealt with, avoided or addressed. The staff may develop research and evaluation strategies that produce data that is neither contrary to a stated or unstated policy and which does not reinforce, affirm, or deny a policy. In which case the evaluation may create an informal policy by default.

Many boards of education routinely deal with operational decisions regarding precedential actions, renewal, or termination decisions. Sometimes they do not use the appropriate data but instead rely on data which supports or denies a policy. For example, when the reading program scores of students are shown in stanines, standard deviations, means, or T scores, the board may decide to renew the same approach or expand it because parents, staff, or students "like" or "favor the program." They do not depend on the data at hand to make actual programmatic adjustments which may be required. The absence of adequate outcome statements in board policy often leads to such statements being established by the means utilized to measure the results of the program.

In the adoption of standardized tests the content and method of analysis as well as the assumptions regarding achievement of students

are classification/categorization decisions.[40] Sometimes board policy statements may exclude some kinds of operational decisions such as statements that boards may be in favor of integration, but opposed to busing.[41]

The decision making space given a principal or supervisor of instruction is defined by the kinds of decisions he or she will be able to make. For example, "Superintendent Smith will decide when a given solution or course of action has failed and when it should be terminated," or "Supervisor Jones will decide on the manner in which the selected soluction will be adjusted programmatically and the timetable for that adjustment." Data produced under a quality control plan for curriculum development will specify these kinds of decisions.

(6) Controlled Implementation

A quality control mechanism in curriculum development means that the curriculum is configured to produce the desired outcomes. The critical variables are identified prior to implementation. There is a *controlled implementation*.[42] The curriculum identifies that which it can mediate or control and that which it cannot. The curriculum may identify the sequence of events or steps of introduction, it may specify the pace to be utilized, the teaching method to be used and related materials. It may provide samples of examples of student reaction. The *interactive process*, the process of translation into practice is the responsibility of the classroom teacher. It is the classroom teacher who reads the faces and cues provided by the students and makes pacing, serial or content adjustments. It is the teacher who must decide the degree of repetition required or necessary. It is the teacher who makes the decision to terminate or adjust a sequence of instruction. The curriculum can specify the ranges of adjustments possible and/or desirable, or identify ranges of interactions that are less effective in producing the desired results. All curriculum must eventually become *interactive* though perhaps in its native state it is inert until and unless it becomes interactive. The liaison from one state to another represents the efforts of teacher use and intervention or a teacher assigned surrogate such as a teaching machine.

Another name for the *interactive curriculum* is *instruction*. The anticipated outcome of instruction or interaction between the student and

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[40] See Oscar K. Buros, "Fifty Years in Testing: Some Reminiscences, Criticisms, and Suggestions," *Educational Researcher* (July-August, 1977) pp. 9-15.

[41] William E. Farrell, "School Integration Fight Hardens in Shift North," *New York Times*, May 13, 1974.

[42] See also James E. Conner and Leon M. Lessinger, "Quality Control: The Missing Link in Educational Management." SEA/Staff Development Project, Council of Chief State School Officers. (Washington, D.C. 1976) 9 pp.

teacher is *learning*. The curriculum is the specification of the content and a curriculum configuration may include components of or cues about instruction. Some curriculum theorists have developed disdain for the curriculum development process, believing that *a priori* distinctions lead to artificiality, rigidity, allienation and discontinuity in learning.[43] They prefer to build a curriculum from the interactive process per se as holistic viewpoints with the selection of methods which provide a stimulus for a personalized experiential base for the learner which is *the curriculum*.[44] There are other philosophical objections posed to the curriculum being developed *a priori* such as the fact that it appears to dampen spontaneity and leads to an emphasis upon rote work passing as learning, i.e., it leads to knowledge but cannot lead to wisdom.

Patrick Suppes has partially responded to this objection when he said:

> "It is often thought and said that what we most need in education is wisdom and broad understanding of the issues that confront us. Not at all, I say. What we need are deeply structured theories in education that drastically reduce, if not eliminate, the need for wisdom. I do not want wise men to design or build the airplane I fly in, but rather technical men who understand the theory of aerodynamics and the structural properties of metal."[45]

Within the confines of the quality control function in curriculum development more precise theories can be formulated and tested. However, the developers must be precise about their terminology, what it is they are attempting to do, what solutions have been selected and why and what the expected outcome or ranges of outcomes will be. Even the ranges of spontaneity and creativity can be defined, though such definitions may vary over time the same way accepted or emerging definitions of great art, music, or theatre vary over time.

Controlled implementation does not imply rigidity, but precision of definition, of situational variables involved, of the interaction process and how and where the outcomes were realized, varied or not obtained. Controlled implementation means that not only the decisions which gave rise to the solution and strategies for realizing the results (were) promulgated, but that the context of implementation was accurately and adequately described to provide a web of meaning in which renewal or termination decisions can then be made and traced. Control

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[43] Herbert M. Kliebard," Reappraisal: The Tyler Rationale," Chapter Five in *Curriculum Theorizing*, W. Pinar (ed.) (Berkeley, California: McCutchan Publishing Corporation, 1975) pp. 70-83.

[44] Pinar and Grumet, *op. cit.*

[45] Patrick Suppes, "The Place of Theory in Educational Research," *Educational Researcher* 3:6 (June, 1974) as cited in Kendell and Byrne, *op. cit.* p. 9.

may not and probably will not ever result in the ability to totally manipulate a given response. Control implies the same kinds of approaches to schools and learning as to ecology, i.e., being aware of certain principles or laws of balance, cause and effect, within a humanly created situation which is largely artificial in the sense there may be no real "natural" balance, though this too may be questioned.

(7) Feedback Demand and Analysis

Quality control requires feedback about results and an analysis of that feedback. How close did the curriculum configuration come to the desired results? Within a quality control situation feedback is demanded, it is anticipated and specified and compared to the results desired. All renewal decisions should be based upon feedback demand of results. All changes should be grounded in feedback data. There is little that is optional about feedback demand. Only precedential decisions can be initiated without feedback demand present. All others require data or feedback as the prerequisite step.

The reason for the stringency of this requirement is that too many educational decisions once made are perpetuated *despite the data* and despite feedback results indicating that selected curriculum configurations are not working. Quality control must be established which requires attention to feedback. Within a stringent quality control system no renewal or termination decision can be made without it.

Of course, this requires a different assessment of the role of testing. Few school districts have any idea the degree to which their standardized testing program reflects the real curriculum or is the real curriculum. Test results are therefore not considered programmatic feedback but summative conclusions. As conclusions how can they be improved?

Quality control in curriculum development envisions tests as means or feedback to assess the efficacy of programs and given curriculum configurations. The test cannot be a configuration. It is a reflection of the existing one. It should be known within a quality control system in curriculum development the degree to which any given test battery or batteries overlap and include or do not include specific curricular objectives. It should be known what segments of the real curriculum are not assessed and what specific areas of the test are irrelevant to the existing curriculum configuration. For this to be made known it is imperative that the "real" curriculum be known.

(8) Successive Approximation Based on Minimal Discrepancy[46]

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[46] For a review of the concept of discrepancy as used here see Roger A. Kaufman. *Educational System Planning* (Englewood Cliffs, New Jersey: Prentice-Hall, 1972).

Quality control in curriculum development insures that there will be a minimal discrepancy between actual and desired results. It has insured adequate definition of results, accurate assessment of the status quo, configuration of resources, the creation of a decision-making audit trail, data specification and production/utilization, controlled implementation, and feedback demand. The effectiveness of the quality control process is that there is the least possible discrepancy between desired and actual results. That there will usually be a discrepancy is assumed because the process of selection, observation, and decision-making is filled with error possibilities of initial perception, process, and subsequent adjustments based upon feedback. But this largely self-correcting process is public and with successive application should reduce the discrepancy not to some absolute state but to accepted ranges of tolerance. The accepted range of tolerance may contain a paradox such as the definition of full employment as that in which "only" 4-5 million people are unemployed. A minimal discrepancy is therefore not an absolute statement but a relative one, and it is one that is continually re-examined.

(9) Establishing and Maintaining Cost Standards

Quality control not only implies learning results but these are defined with agreed upon cost indices as well. Monitoring the process should produce feedback that enables adjustments to be made so that results of the least discrepancy occur within the agreed upon ranges of cost established at the outset.

This approach differs markedly from the viewpoints of some who simply say that society must pay no matter what the costs are. Some school districts now run in the red. Many systems have lost much of their capability to control costs and simply pass the buck onto the state legislature or the federal government.[47] Taxpayers in some states have simply chosen to let the schools stand idle in the school year rather than continue to pay for schools which they perceive to have no adequate cost control mechanism,[48], [49] or to allow the schools to absorb severe cutbacks in staff and services.[50], [51] Said a former board of

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[47] Seth S. King, "Chicago Schools' Deficit To Force Early Closing." *New York Times* May 30, 1976.

[48] "Closed Schools in Oregon District Pose Dilemma for the Taxpayers," *New York Times*, November 8, 1976.

[49] Gene I. Maeroff, "School Problems of Toledo Found in Many Other Districts in Ohio," *New York Times*, November 13, 1977.

[50] Reginald Stuart, "Cut-Back Detroit Schools Open in Air of Uncertainty," *New York Times*, September 9, 1976.

[51] "East Ramapo Tax Meets Opposition," *New York Times*, May 4, 1976.

education member in the District of Columbia," Congress has been damn generous to the schools of D.C. And Congress has been damn stupid in not asking what they are doing with all this money. There is no money problem. You cannot finance a rat hole."[52]

The establishment of reasonable and valid cost indicators in which the idea of quality control is both a matter of achieving results and doing so within agreed upon cost indices, go hand in hand.

Curriculum Mapping: Discovering the Real Curriculum As a Bottom Line

The *real* curriculum consists of two parts: the *content prescription* and the *interaction description*. Due to the fact that most curricular guidelines are very global, the content prescription in many school districts leaves to teachers almost total responsibility for selection, variation, iteration and pacing. Large chunks of the content therefore fall into the *interaction description*. How then does a school or a school district achieve any economy of scale via coordination and articulation? Where and how is the necessary school wide or system wide degree of repetition decided or does it occur by default? How are problems which result in variations in terminology, pacing, iteration and selection handled and resolved? How is it ensured that students do not suffer as the result of either no machinery being available in the system to handle the problem, and/or teacher freedom to engage in selection and variation?

The cellular isolation of teachers in schools and the profession's long history of idiosyncratic response to change enhances the school and system wide problems of curricular/instructional coordination, laterally and vertically. Intelligent decisions about changing the curriculum should be based upon an accurate description of the status quo. Curriculum guidelines, behavioral objectives, course outlines are all descriptions of a future desired condition or set of conditions. They are not the status quo. They are not the real curriculum, either the actual content or the interaction process bridging into learning. The real curriculum represents the bottom line, the "thing" that is or is not coordinated, articulated, alive, repetitious by design or default, or economical. Most curriculum development efforts do not engage in quality control procedures. Instead they are efforts in philosophizing about policy, classifying or categorizing discussions,

[52] Lawrence Feinberg, "D.C. Schools: Is Money the Answer?" *Washington Post* March 7, 1971.

and new efforts to describe a new "future" or new guidelines. Data is rarely gathered to carefully examine an existing configuration instead of assuming that the guidelines represent the curriculum and the curriculum should be changed by developing new guidelines. The actual or real curriculum may never be touched in the cycle of updating curriculum guidelines.

The process of quality control in curriculum development demands an accurate and valid assessment of the real curriculum. It is primarily aimed at finding out, for better or worse, and without penalities, the actual content of the classroom and the ranges of the interactive process most often utilized in the learning process.

There are two emerging approaches to curriculum mapping being utilized. The first represents an approach to involve teachers in mapping their own classroom curriculum by having them put to paper the actual content and interactive process of their work with children. One example of a format is shown in Figure 2 although there are a variety of formats possible. The touchstone to the development of a format should be simplicity and parsimony. The form should not require any more description than is absolutely necessary to answer basic questions about the real curriculum.

There are several practical and theoretical problems with the utilization of teachers to map the real curriculum. It is assumed that in curriculum mapping with involved teachers that the classroom group or classroom is the *unit of analysis*. Then if all of the classrooms are put together the fabric totally would be the curriculum of the school, of the elementary or secondary schools, and eventually of the school system. If the unit of analysis is actually smaller, i.e., to instructional groups *within* classrooms the picture provided may not be accurate.

Another problem is that because curricular guidelines are vague teachers are continuously negotiating their decision-making space. After all their autonomy and independence rests upon their ability to individually decide upon these matters. Thompson cites the work of Stryker in analyzing why curriculum revision attempts at the university faculty meetings usually are not successful. While curriculum decisions should be made in the interests of the students, they most often hinge upon the interests of each faculty member. Given this situation it is necessary to work out a series of compromises informally and individually.[53] One must assume that what the teacher

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[53] Sheldon Stryker, "The Collegial Organization: Some Dysfunctional Elements," Working paper for Seminar in the Social Science of Organizations. Pittsburgh, June, 1963 (Mimeographed) as cited in James D. Thompson. *Organizations in Action* (New York: McGraw-Hill, 1967) p. 141.

Figure 2

Classroom Curriculum Mapping Worksheet

Content Definition and Scope (describe generally what you teach by topics or sub-topics)	
Content Variations/Interactions (describe the major variations and interactions which are expected to occur or have occurred.)	
Expected or Actual Outcomes and Elapsed Time (describe the expected or actual outcomes obtained—you may use the categorization of cognitive, affective, or psychomotor if desired)	
Methods of Assessment/ Correlation to Current School/District Testing Program (describe the degree to which the outcomes are assessed under the current school or system testing program)	
Textual and Other Materials Utilized as Teaching Tools (describe the major text and other significant references utilized)	

teacher _____ school _____ grade _____ subject _____

says the curriculum is, reflects the true curriculum. Errors may be caused by distortion or by simple misperception. Still another problem is that the approach to involve staff is time consuming, often tedious, may require some in-service training to learn to handle a new language, and may involve individual and group negotiation skills. The latter kind of skills are not usually learned by teachers because they operate in isolation from each other on a daily basis. In some instances teachers may not be capable of filling in the form. This fact cannot be construed to mean that nothing is being taught or learned.

> "The expert's inability to describe fully the basis of his own performance has also emerged in recent work in cognitive psychology, work that attempts to simulate the performance of expert performers of complex tasks. Skilled performers of a task cannot always describe well what they know; even more rarely can they describe the psychological processes called upon when they use their knowledge; and they are further still, in most cases, from being able to describe how they acquired their expertise—how they changed from novices to experts."[54]

As teachers are involved to map their own curriculum there is a great temptation on their part to want to put down what they "think" the administration may desire, or to copy the material from the system curriculum guide or state handbook or textbook. Great insistance upon accuracy will require that whatever the teacher does or does not do be represented without penality or perceived penalty. The degree to which teachers feel, real or imaginary, that penalities may follow their revelations about the real curriculum, is the degree to which distortion may be part of the description of the curriculum.

Still another problem is that even if teachers can accurately describe the curriculum at any given time, it may in fact be the sum process of interaction and *be moving*. Reality is that there is no actual firm status quo because the status quo is fluid. While this is true, insistence upon an accurate assessment at a given time will reveal *the ranges* of variation within the same segment of the school system and the degree or lack of degree or coordination at a given moment and much like a standard deviation, the information it provides is extremely useful in designing efforts to more closely coordinate the real curriculum.

The baseline information derived from a teacher constructed curriculum map is a starting point for an analysis of the vertical cur-

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[54] Lauren B. Resnick, "The Science and Art of Curriculum Design," in *Strategies for Curriculum Development*, J. Schaffarzick and D. Hampson (eds.) (Berkeley, California: McCutchan Publishing Corporation, 1975) p. 43.

riculum.[55] Mapping involves largely a description of the lateral curriculum. The vertical curriculum is the plan of unfolding of a subject, topic, theme, or area, K-12. It contains the logic and theory of presentation, order, iteration and complexity. To have teachers worry about the vertical curriculum as they attempt to map may introduce a significant amount of distortion into the process because a curriculum guide may be written and not a map. Teachers should only worry about describing their own area, and not about whether the total map (the vertical curriculum) makes any overall sense. That is a central responsibility. In small districts it is the responsibility of the superintendent, and in larger districts the function of supervisors or directors of instruction.

It is within the appraisal of the vertical curriculum that articulation and coordination problems are approached. This appraisal involves a search for the plan of unfolding or development. The plan should contain the assumptions utilized and the resolution of existing theoretical issues present. It should take into account something regarding learners and learner motivation. A curriculum map should serve as the basis for the creation of a vertical curriculum by using it to examine the inconsistencies, duplication, and gaps revealed. One example is provided of a small district's social studies curriculum. After the lateral descriptive work had been completed, a review of the curriculum vertically is shown in *Figure* 3.

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[55]This section has been revised and extrapolated from Fenwick W. English, "An Analysis and Critique of the Compendium of the K-12 School District Curriculum of the Hastings Public Schools, Hastings-on-Hudson, New York." December, 1977. (Xeroxed) 15 pp.

Figure 3

The Vertical Curriculum in Social Studies Derived from a Lateral Curriculum Map

Grade	Content/Topics Studied
K	—social organization, family, school, economic organization
1	—local environmental studies, family farm life long ago
2	—study of local community
3	—geography, types of environment, climate
4	—American people, discoverers, explorers, Westward Movement
5	—cultures (Indians, Europeans, Africans in Western Hemisphere) Canadian settlers, South American today, urbanism, growth of cities, industrialism, American values
6	—basic geographic terms (maps and globes) ancient civilizations of the Middle East/Mediterranean, archaeology, the Dark Ages, the Vikings, Islam, Middle Ages, Christianity, emergence of nations
7	—the individual and society, economic system, communications, rural America (colonization, Westward Expansion, Civil War, Reconstruction)
8	—growth of urban America, industrialism, immigration, Twentieth Century, minority studies (map and graph skills)
9	—world studies (Soviet Union, Africa, Asia, and Middle East)
10	—Rennaissance/Reformation, modern Europe
11-12	—American History (immigration, American Revolution, the Jackson Era, Pre-Civil War, American Imperialism, The New Deal, Cold War —Modern European History —Project Advance Psychology —Anthropology —City and Suburb, Urban Society —Contemporary Political Concerns —Pollution, Environment, and Society

A perusal of merely a content analysis does not reveal an obvious logical plan of unfolding or iteration. Certain topics are repeated as for example urbanism which is studied in grades 6, 8, and 11-12, Westward Expansion which occurs in grades 4 and 7, geography in 3, 6, and 8. While the degree of iteration could be explained as building upon previous knowledge and skills, this explanation would be more feasible within a logical plan of development which was not present.

Within this social studies vertical curriculum a student begins in kindergarten by studying the family and moves on to farm life and his or her local community. By grade three he or she is examining geography and climate, and in grade four is into the American people, discoverers and explorers. In grade five, however, the student jumps to South America today, considers urbanism and the growth of cities and the impact of industrialism. In grade six the student returns to geography and examines the ancient civilizations, the Vikings and the emergence of nations. In grade seven the student returns to rural America and the colonization and Westward Expansion again and the Civil War. In grade eight the student is back into Twentieth Century looking at urban America and industrialism with more training in geography skills. In grade nine the student is exposed to the Soviet Union, Africa, Asia, and the Middle East, and in grade ten is submerged in the Renaissance and Reformation to modern Europe. Finally in grade eleven the student reconsiders the American Revolution, Pre-Civil War days, immigration and the New Deal and may opt for elective courses in psychology or anthropology or again examine urban society, contemporary political concerns or pollution. If there is a plan of unfolding in the social studies curriculum K—12 from the example it is hard to imagine what it is. It is certainly not chronological or thematic, K—12. If it is a spiral it is hard to conceptualize it as such. It appears to be topical, but without any logical plan of unfolding topically.

A perusal of the district's curriculum guide might reveal a logical plan of unfolding. A comparison to the actual or real curriculum may make a shambles of the guide and any logical plan of development. While repetition is a key to the reinforcement of critical skills. It is also a factor in promoting student boredom. How many times is urbanism studied! What is the degree of overlap? Is it planned and articulated iteration or merely duplication by default? These kinds of questions should be asked in using an accurately developed curriculum map.

Why is vertical articulation so difficult to achieve? One reason is the isolation of schools from each other. Another is related to the emergence of the curricular subjects as distinct entities at the secondary level which are not always found at the lower elementary grades. But perhaps the most difficult is the existing decision making space of the classroom teacher and the problems of achieving a balanced cur-

riculum within the existing prerogatives of all teachers to make curricular decisions. The construction of the vertical curriculum involves negotiations between individuals, departments, and schools. The first step is to create an accurate picture of the status quo so that the reality of any discontinuities are clearly indicated. Too often, detected inconsistencies intuitively grasped by parents or students can be explained away, and there is a great temptation to do so because the process of building a vertical curriculum involves extensive interpersonal and intergroup collaboration. Without understanding this dimension, merely directing the curriculum to be "coordinated" across the departments and buildings will be an exercise in self-deception not to mention futility. It is shadow boxing with the real issues of curriculum articulation and coordination. At the roots of any discussion about the vertical curriculum and building articulation are questions concerning exclusion/inclusion, iteration and logic of presentation. Without a sound rationale being developed and with no pressure to find or develop one, the curriculum is merely a potpourri of "things" on display, much like a museum.

If curriculum development is to be an aspect of quality control, curriculum mapping is an essential aspect of creating it. Quality control must deal with reality rather than fiction. It must begin with an accurate assessment of the status quo. However, quality control is a system wide problem, a problem of management. It is only an individual teacher problem when the information gathered in mapping will assist teachers in their jobs. As Dan Lortie has noted in his analysis of teachers, teacher goals are not necessarily system goals. The solution to a system problem may not be a solution to a teacher perceived problem.[56] As Harry Wolcott stated in his case study of a PPBS system that failed, "Teachers will most readily accept those changes that offer solutions to teacher problems."[57]

If teachers are to be involved in mapping, the notion of quality control has to offer some solutions to teacher perceived problems. It is felt that mapping offers possible solutions to the following kinds of teacher perceived problems.

(1) Pupil Unpreparedness

The establishment of an accurate lateral curriculum map enables teachers to see where certain gaps are occurring and to understand why pupils are not coming to them well prepared in certain curricular subjects or skills. Many times curricular adjustments can be made

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[56]Dan C. Lortie. *School Teacher* (Chicago: University of Chicago Press, 1975) pp. 109-110.

[57]Harry F. Wolcott. *Teachers Vs. Technocrats* (Eugene, Oregon: Center for Educational Policy and Management, 1977) p. 245.

without any further expenditures of money. A lateral curriculum can lead to adjustments in the vertical curriculum that result in better coordination across grade levels and/or between schools.

(2) Pupil Diversity and Instructional Alternatives

Adequate curriculum mapping which leads to a more precise curriculum can assist in both identifying pupil diversity earlier and in serving as a stimulus for greater curricular/instructional diversity. It is much easier for uniformity to exist in the framework of vague instructional expectations than within specific expectations.

(3) School System Responsibility to Provide Adequate Resources

The development of an accurate curriculum map will help teachers to sort out their responsibilities within their decision making space, and to fix responsibilities of other officials within their space for the adequate allocation of resources to close identified gaps. As the respective decision making spaces are defined, it will be impossible for any one group to have to bear the brunt of being solely accountable. The creation of the map will indicate the interrelatedness of all roles and responsibilities in assisting pupils to learn.

(4) Realistic Expectations of Teacher Impact

Sometimes the source of anxiety is due to vague expectations of performance that are not clarified. The process of mapping often clarifies expectations and teachers begin to see that the range of their responses or behaviors is compatible within the range of expectation. This leads to less anxiety and more productive use of existing teacher talent.

(5) A Base for Collegial Interaction and Collaboration

The creation of an accurate lateral curriculum map can lead to the creation of staff working groups of a collaborative nature that lead to an articulated curriculum. Relationships are developed by which negotiations can occur to alter the curriculum in the future within the kind of human dynamics that are too often absent in discussions about curriculum change.

Lastly, curriculum mapping is a here and now task. It is mapping what the teacher is now doing, not forcing them to engage in a prolonged consideration of some future desired state. As both Dan Lortie and Harry Wolcott have noted, teachers time orientation is the present. Mapping is dealing with the present, the actual as opposed to the hypothetical curriculum. Furthermore mapping as an activity recog-

nizes the implicit fact that much of the curriculum consists of spontaneous interactions between teachers and students, and is therefore a recognition of the autonomy that teachers already possess in most school systems.

The second approach to curriculum mapping is observational. It is an attempt to construct the actual curriculum via an observer in the classroom rather than have the teacher map the curriculum. As such it has some distinct advantages over the former approach. However, it will be only larger school systems with adequate levels of supervisory staff present that will be able to approach on any large scale curriculum mapping by observation.

One school system that has pioneered in this approach is East Baton Rouge, Louisiana.[58] They are already discovering the severe demands placed upon the staff for adequate time in classrooms to obtain an accurate picture of the real curriculum. In most cases the approach will utilize the classroom as the basic unit of analysis. Figures 4 and 5 show Baton Rouge's curriculum mapping observational cards. Problems with the observational approach are that some observer bias has to be present as well as inter-observational reliability factors. This may introduce a second possible contaminating source of distortion. East Baton Rouge has taken some imaginative steps to combat these generic problems. Plans are underway to reduce inter-observational bias through simultaneous observations and correlations of results. Validation procedures to insure quality control are presently being considered and developed. Sampling procedures are being designed to insure a sufficient number of observations to assess both what is taught and how it is taught.[59]

The advantages to the observational approach are that it does not impose upon teacher time and recognizes that even if teachers map their own curriculum there is a difference between good documents and good teaching.[60] The disadvantages are that adequate sampling may require extensive demands upon instructional/supervisory staff. It may also be viewed as an overextension of administrative authority in the teacher's historic decision making space. The climate in which mapping occurs will do a lot to taint its impact with the teaching staff.

The benefits from curriculum mapping are expected to be as follows: (1) Data is generated about what the actual baseline or bottom line is in

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[58] "Elementary Curricular Mapping," East Baton Rouge Parish Schools, Research and Curriculum Development Departmental Staff," October 12, 1977. (Mimeographed) 3 pp.

[59] Derived from personal correspondence from Helen Brown and Jack Howell, East Baton Rouge, December 22, 1977.

[60] Wolcott, *op. cit.* p. 220.

Quality Control
Elementary Curricular Mapping

School _____ Grade _____ Teacher _____

Subject _____

Lesson Objective _____

_____

Teaching Methods	Materials of Instruction A=Available; U=Used
	A U
_ a. Desk work	_ _ a. Realia
_ b. Lecture	_ _ b. Film
_ c. Demonstration	_ _ c. Filmstrip
_ d. Discussion	_ _ d. Transparency
_ e. Recitation	_ _ e. Map-Globe
_ f. Independent Study	_ _ f. Teacher
_ g. Learning Centers	_ _ g. Tape
	_ _ h. Recording
	_ _ i. Textbook
	_ _ j. Library books
	_ _ k. Dictionary
	_ _ l. Encyclopedia
	_ _ m. Ditto sheet
Organization for Instruction	
_ Large Group	
_ Small Group	
_ Individual	

SUBJECT MATTER

Topic (Example: Community Helpers, Ecology, Topic Fractions, and/or Synonyms)

Concepts and skills taught:

Observer _____ Date _____

Student Activities Observed

_____ (1) Educational media equipment and software visible in classroom

_____ (2) Educational media equipment and software in use in classroom

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Indicators of Student Involvement

Activities required student to:

_____ a. Recall facts

_____ b. Understand ideas

_____ c. Apply knowledge/skills

_____ d. Relate subject to own interests

_____ e. Assist in planning own work

_____ f. Evaluate own work

Quality Control
Secondary Curricular Mapping

School _____ Grade _____ Teacher _____

Subject _____

Lesson Objective _____

_____

_____

Organization for Instruction	Teaching Methods	Materials of Instruction
Large Group _____	"Desk work" _____	Multiple Sources Available _____
Small Group _____	Lecture _____	Used only one Source _____
Individual _____	Demonst. _____	Used Variety of Sources _____
	Discussion _____	Textbooks
	Independent Study _____	a. available _____
	Learning Centers _____	b. appropriate _____

SUBJECT	How Subject is Being Taught
What is being taught	Do activities promote: (Check one) (1-least, 5-most)

	1	2	3	4	5
Simple recall					
Informed choices					
Active role					
Application					
Dir. Experience					
Levels/ability					
Relevance					
Inquiry					

Observer _____ Date _____

Parish Curriculum Guide

Evidence of Usage:
(where applicable): _____

Recommended guide modifications: _____

Check the appropriate items below for the area of curriculum observed:

Humanities
_____ (1) interdisciplinary approach
_____ (2) rote learning
_____ (3)

Science
_____ (1) inquiry and discovery approach
_____ (2) memorization of facts
_____ (3)

Social Studies
_____ (1) application to contemporary social problems
_____ (2) inquiry and development of critical thinking
_____ (3) memorization of facts
_____ (4)

Mathematics
_____ (1) application of skills to realistic situations
_____ (2) development of concepts
_____ (3) memorization of facts and rules
_____ (4)

English
_____ (1) skills studied in context of reading selection
_____ (2) skills and rules studied in isolation
_____ (3) workbook exercises or ditto sheets

Student Activities Observed:

Additional Observation:
_____ (1) educational media equipment and software visible in classroom
_____ (2) educational media equipment and software in use in classroom

terms of content being taught, instructional methods being utilized, assessment being used, and results being obtained.

(2) Coordination problems, laterally and vertically, which are represented in the map are not problems of the future caused by adjustments or contradictions in curriculum guidelines, but by the problems of everyday learning and teaching in the schools. Coordination problems are real problems and not hypothetical ones.

(3) Problems of curriculum articulation and coordination are not solved by drafting new guidelines, but by coordinating the actual curriculum now in use and searching for the plan of unfolding. The absence of a logical plan can lead to both the development of one and further curricular change in the real curriculum.

(4) Instructional leaders and supervisors are involving teachers and other staff in a process which deals with the here and now, the real problems in classrooms and schools, not in extended dialogue about the fictional curriculum. The response so far received from teachers is quite different than the usual response of writing a new future-oriented curriculum guide.

(5) A new definition of the appropriateness of the district's testing program is reached. Testing is clearly a means to an end. It is a way to use feedback if the curriculum has been described accurately. It is then possible to pair up the objectives within the curriculum to test items. It is possible to ascertain what part of the curriculum is not assessed from a test and what part is assessed. Testing can then assume a useful feedback function and serve as a base to modify the curriculum, methods, strategies rather than serving as the curriculum itself.

Curriculum mapping is different than drafting a new curriculum guide. It is quite literally an accurate layout of the actual curriculum in the classrooms of the schools. Mapping serves not to eliminate choice on the part of teachers or students but to describe the existing ranges of choices which are open to teachers and students and to find out what and how many are being utilized. One source of mapping has yet to be explored, i.e., the utilization of students to describe both the content and process. This would not occur in an evaluative context, though that may be perhaps inevitable, but as a descriptive procedure without judgment.

A school district that has engaged in and constructed its curricular map can be expected to do the following activities better than those which have not.

(1) Allocation of Resources

It is extremely difficult to understand how effective any given resource allocation procedure or strategy in the public schools may be.

Because the schooling enterprise is not based upon outcomes or results, strategies of allocation are assigned by formula. Arguments therefore abound about equality but not equity. Every student receives the same level of funding regardless of need is construed by some as equality. Formulae which recognize differences are extremely difficult to fund and maintain because they deal with the interests and needs of minorities. Egalitarianism clearly has limits as a budget rationale. Treating everybody the same can be highly discriminatory.

A school district which had mapped the "real" curriculum and understood where things are located across the school system is in a much better position to engage in differential funding and to configure dollar resources to improve weak areas rather than spread the money across the entire curriculum and maintain both strengths and weaknesses. Allocation decisions can pinpoint locations which demand update, better coordination, revisions or wholesale changes. The entire curriculum fabric can be examined in more detail.

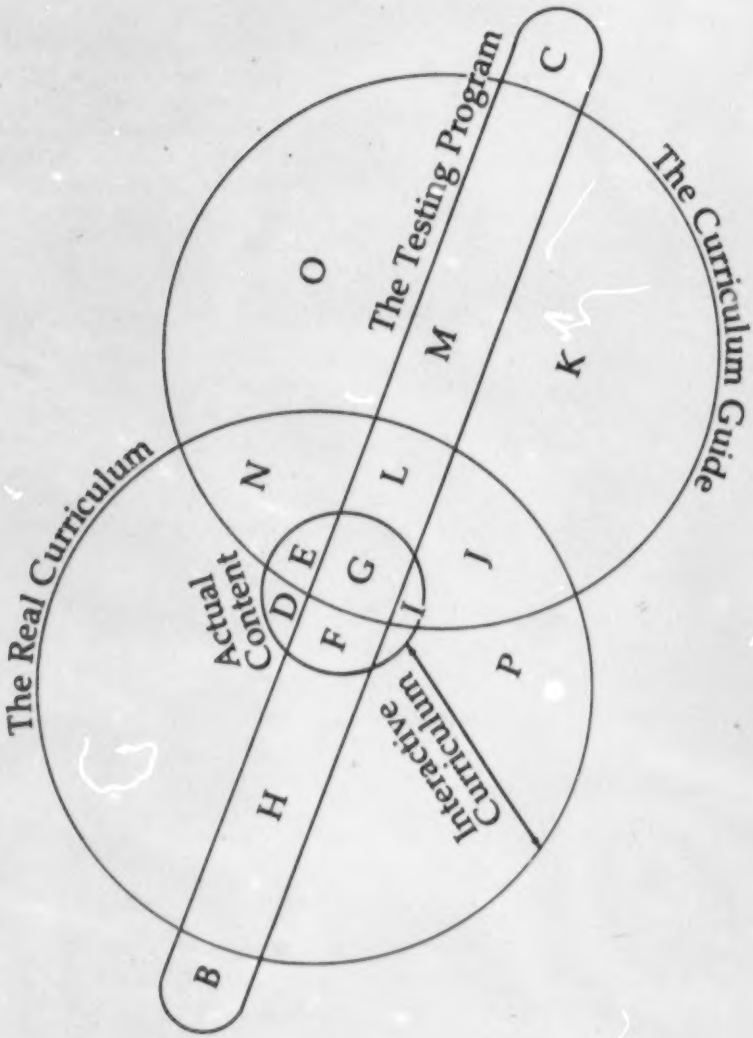
(2) Discretionary Control Over Instruction Is Increased

Because the curriculum has been described in sufficiently greater detail and is a closer reflection of what is really occurring in classrooms, the closeness between impact and decisions is enhanced. Specificity leads to precision. The curriculum itself more closely resembles or meets the actual parameters of instruction in the schools. Test data can be utilized more effectively and will relate to results obtained more closely. Curricular changes can be monitored more effectively and the need for changes can be more quickly ascertained as helpful or hindering the process of instruction. Figure 6 indicates how these delineations become clear in the mapping process.

Two Approaches to Curriculum Development

While there are more than two approaches to curriculum development, one seems to be dominant in the field. This would be the notion that the interactive curriculum predominates and the actual content is set forth loosely in curriculum guides and perhaps in texts and tests. The traditional approach in the field to curriculum development has been to obtain copies of the old curriculum guide. The developers assume that the guide is the real curriculum and write a new guide which details the new curriculum. The "new" curriculum is usually culled from texts, tests, plans, notes, articles, other guidelines. Some attention is paid to scope and sequence, either from the point of view of logical development or some other type of unfolding or "coverage" pattern. A few behavioral objectives are usually put in as examples.

Hypothetical delineations attained with curriculum mapping between real/desired curriculum and the testing program.



Explanation	Legend															
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1. That part of the real curriculum and that in the curriculum guide which are correlated.					X		X		X	X		X		X		
2. That part of the guide and real curriculum currently assessed by the testing program.						X	X	X				X	X			
3. That part of the testing program not in the guide or real curriculum.		X	X													
4. The real curriculum not in the guide or assessed by the testing progra...	X			X												X
5. That part of the curriculum guide not part of the real curriculum.											X		X		X	
6. The interactive curriculum not assessed by the testing program or part of the curriculum guidelines.	X			X												X
7. Curriculum content not assessed or in the guide.																

The approach advocated in this publication is that curriculum development should occur within the context of quality control with the implicit assumption that a curriculum that cannot be managed cannot be improved. For something to be managed it must be responsive, capable of being enhanced with feedback about results, and cost effective.

Curriculum mapping is not curriculum development. It is the first step a school district should take to engage in the process of curriculum development. Mapping merely creates the best estimate of the actual base line currently operational in the district's classrooms. The steps in the approach to mapping were:

(1) Make no assumption that the curriculum guide has much resemblance to the real curriculum.
(2) Develop a format which will describe or map the real curriculum following the principle of parsimony.
(3) Consider the interactive or planned interaction between the teacher and student, and student/student, as part of the curriculum to be described.
(4) Develop and implement a strategy to describe the real curriculum as the *actual* classroom content and interaction.
(5) Gather the mapping data on a lateral basis from the unit of analysis selected to compose a picture of the real vertical curriculum. Subject the vertical curriculum to the following questions:
    (a) Does the curriculum follow a stated or implied plan of unfolding or development?
    (b) Is there a rationale for the degree of iteration present? Is the rationale being followed, do they correlate?
    (c) To what extent are gaps or holes present in the lateral curriculum or in the vertical curriculum?
    (d) To what extent is the actual scope of the curriculum part of a stated or implied plan of unfolding?
    (e) To what extent does the actual curriculum in use provide for, recognize and use test data of pupil accomplishment as a source of feedback to reconfigure itself?
    (f) To what extent does the actual curriculum make provisions for existing pupil differences in motivation, background, achievement, and other significant differences in learning ability or accomplishment?
(6) Begin the process of re-configuration (curriculum development) from both mapping data and needs assessment data.[61]

Curriculum development conceptualized as a means to validated

[61] Roger A. Kaufman and Fenwick W. English. *Needs Assessment: Concept and Practice* (Englewood Cliffs, New Jersey: Educational Technology Publications, 1978) (in press).

and desired student outcomes is the process of configuring the resources available within the school system (time, people, materials) to achieve those outcomes, or at least substantially improve upon the probability that they will occur within the school and later in society.

Curriculum development is not antithetical to management concepts, but instead fulfills one of management's most basic concerns, i.e., quality control with accompanying supervision. At the present time the shape of most curricula in many school systems stands as first class obstacle to effective management. It does this through the following means:

(1) Substituting vague and loosely held beliefs for specific types of expected outcomes

Vague purposes lead to confusion, duplication and contradictory interpretations of what is desired by the system. It creates agreement at a global level and deludes the constitutent groups into believing that consensus exists when in fact it does not. It sets forth a constant battle over interpretation within the school system and fuels the strife that may already exist. The most serious criticism is that global goals are self-deluding or system deluding. They don't convince the public, and they may succeed in decreasing the probability that various internal groups within the school system seek to define the outcomes more precisely.

(2) Perpetuating a system in which idiosyncratic actions are shielded from adequate scrutiny and evaluation

Since teachers operate in cellular isolation from each other, their principals and supervisors, a system of loosely held beliefs and global purposes offers an acceptable umbrella, an official sanction of "anything goes" within certain norms within the organization. The amount of true variance within similar grade levels or whatever organizational format is being utilized makes adequate coordination and articulation difficult. Furthermore there are few incentives for teachers to coordinate their curriculum since this involves individual negotiations from the position of a self-contained classroom. It prevents the development of strong collegial norms though some do exist, and blunts any plan for effective group action against those who are not contributing adequately to the overall purposes of the school district. It means that any individual, idiosyncratic goal can work at cross purposes to those embraced and adopted by the governance of the system. It creates an official way to defy system operation and at the same time operate within the overall protection of the school or district. It allows too broad a definition of compatibility between actions and results.

(3) Preventing adequate descriptive references for the status quo which denies adequate conceptualization of good practice

Without accurate descriptions of the real curriculum, the hypothetical curriculum stands for the real thing. The hypothetical curriculum is the one presented to the public, adopted by the board and over which much time, debate and effort is spent while simultaneously having little if any impact on the real teaching and learning that is actually going on or not going on in the classrooms of the schools. It therefore stands as an impediment to ascertain to what effect curricular decisions have upon learning or achievement. Case studies which have had impact upon other professions are useless in a system in which idiosyncratic practice reigns supreme because they can be dismissed by a lack of generic application from one situation to the next. Good practice can be excused rather than fostered. Exemplars are hard to come by. The absence of specific referents within the system make models of teaching excellence irrelevant, particularly when they are invisible from other colleagues.

(4) Prevents the school district from using feedback positively

A school district without adequate prescriptive outcome references cannot use feedback very well. In particular most feedback comes from standardized tests. Such tests do not correlate with the real curriculum, or if they do the system is usually ignorant about the degree of correlation. Classroom teachers have difficulty seeing any correlation between what they do and what the test tests. Therefore test data is seen as irrelevant or dangerous. Tests can quickly become the curriculum within vague guidelines used by school districts. It is fairly well understood that the easiest and cheapest form of curriculum coordination is to write a test. When curricular guidelines are vague the selection of tests on the basis of content validity correlated with the curriculum is often impossible since virtually all of the tests can be correlated about as well.

(5) Blunts actions which pertain to discovering cost effective solutions to existing curricular/instructional problems

The criteria for determining cost effectiveness is not merely the cheapest available solution, but that solution which produces *results* at the least cost. There is a difference. A system which has vague goals and expected outcomes has few criteria to engage in knowing which approach best reaches those goals, since it cannot be shown that any one is more or less capable in this regard. Therefore since none appear to make a substantial difference, the cheapest one will suffice. Cost effectiveness must be calculated within the parameters of obtaining the

results desired first, and the actual costs second. When these two indices are considered together, then the most cost effective solution may be the most expensive if it is the only one that works.

Curriculum development as a process to effectively configure the resources of the schools to accomplish their specific purposes should be compatible with and reinforce concepts of effective management. Control as direction is essential to improvement. Current vague curricular objectives for students reinforce a system of control in which specific actions are determined by practitioners in isolation from one another, and shielded by the current bureaucratic structure from effective management action.

Decisions by boards of education, public involvement and participation, even union contracts, are pro-forma in terms of classroom impact, unless that participation and subsequent involvement can lead to actions which are traceable and specific upon the total behavior of the school system. A school district which is merely a collection of individuals operating within a system of vague guidelines which cannot effectively differentiate between good and poor practice, and which is unable to promote adequate curricular articulation and coordination across the various sub-units (schools) remains responsive only at a level of abstraction which ignores the day to day realities of teaching and learning in the public schools.

In Defense of the Administration and Supervision of Curriculum and Instruction

Someone has to administer and supervise the mapping of curriculum and the process of curriculum development in the schools. In small systems under 1,000 students (of which they comprise over 50% of the nation's school districts), it will remain a task of the superintendent of schools and principals. In larger school districts, a cadre of specialized roles at the central office level has historically been involved in curriculum development. Regardless of the size, however, school systems are under intensive pressure to trim staff and to make reductions in school programs such as kindergarten, guidance services, library services, varsity sports, and reduce the numbers of administrators.[62] The scramble to avoid being laid off has forced segments of the professional staff to try and retain their jobs be denigrat-

[62] Philadelphia was forced to lay off 9,000 employees, one-third of them teachers. James F. Clarity, "Philadelphia Looking to State Aid To Avert Major School Cutbacks." *New York Times*, June 3, 1977.

ing the viability of other types of services. The struggle has frequently erupted into the public eye as various administrative, supervisory, and teacher groups state their case for the retention of their own roles.[63]

Because most citizens are not familiar with administrative and supervisory functions, because teaching functions are the most visible, immediate, and known to taxpayers who have for the most part attended school, and because teacher unions often exert the most powerful and intimidating employee group pressure upon boards, it is relatively easier to support the reduction of work force which is the most poorly represented rather than the most necessary for the instructional program. In one school district a proposal to reduce the number of teaching department heads resulted in a hearing before the State Board of Education and forced the board involved to eliminate an administrative position. Said the board chairman, "It satisfied everyone involved, but it hardly helped us cut our costs."[64]

Superintendents have not always known how to defend their instructional and supervisory personnel from such attacks, nor have they been able in many cases to explain adequately or convincingly what they do and/or why it is important to retain their services even in budgetary crunches.

While it is clear to the public that most schools require a principal,[65] it is not so clear why a school system requires and even demands instructional/supervisory personnel at the central level. In too many cases the prevailing view of such personnel is that they were tolerated in good times, but can be eliminated as "excess baggage" in bad times. The stereotyped image of people looking for work is echoed in public complaints about the cost of education such as, "The reason it costs up to $75.00 a week to educate one child is that the school system is overweighted with administrators and staff members who sit in empty rooms counting paper clips."[66]

While teacher unions can fall back upon emotional arguments about class size and pit job security of those "closest to children" against the machinations of an insensitive bureaucracy, demanding cuts there prior to or commensurate with any reductions in their ranks, middle management supervisors and coordinators of various instructional and curricular areas have no such emotional or personal claims to make. The "proximity pitch" of the unions reinforces citizen

[63] Albert Shanker, "Where We Stand," *New York Times*, June 16, 1977.

[64] Michael Knight, "Suburbs Losing Control of Schools," *New York Times*, July 18, 1977.

[65] Public outrage followed the revelation in New York City that in one district there were twenty schools and thirty-two principals. The assumption was clearly made that one principal per school was all that was required. Marcia Chambers, "One District, 20 Schools and 32 Principals." *New York Times*, June 27, 1977.

[66] John J. Petrale, "The Schools: 'Worse Every Year'" *New York Times*, May 29, 1977.

stereotypes held of bumbling bureaucrats performing makework. In the words of one Florida school board chairman, "If we're going to make cutbacks, let's make them all the way up and down the line. We ought to take a hard look at the top-heavy administrative staff. The place to get rid of the 'gravy' is in the administration. Education takes place in the classroom, not at the administrative level."[67] With such thinking the vulnerability of administrative and supervisory staff to having their ranks thinned is considerably enhanced without any serious consideration of the consequences or recognition of the functional differences between roles in the school system.

Undoubtedly superintendents and boards of education are not familiar with the management of decline. "Most of what we do in school financing is marginal," said one school fiscal expert, "We just don't know how to cut budgets. No thoughtful work has ever been done on it. We know how to build budgets, but not how to squeeze them down. Some say the way to squeeze down is to reverse the process of building up, but that eliminates some of the best and most innovative programs.[68]

Some of the attitudes about reducing school middle management as advanced by some teacher unions and taxpayers is to simply let teachers run the show. This position falls into what may be called "organic management." That concept is addressed by Peter Drucker in his book on management as totally without any evidence to support it. It is based upon the romantic Roussean notion that people freed from artificial constraints will then be able to solve complex problems. As Drucker notes, "the proper structure of work—of any work—is not intuitively obvious."[69] Additional evidence of the fallacy of this concept is produced by the early failures of Chicago's Metro High School:

> "The concept of 'organic' or 'natural' growth suggests that once people are freed from the oppressive restrictions of the traditional school, a new learning community will evolve naturally as people deal with each other openly and honestly. There seems to be a widely shared assumption that both the individuals involved in an alternative school and the school community as a whole can rather easily shed a skin of traditional habits and attitudes, and that from underneath the old skin will emerge a beautiful new man, new woman, and new community. But the experience of Metro and other alternative schools suggests that what emerges 'organically' in an alternative school is not a new person or community, but rather those deeply ingrained patterns of thought and action of the

[67] Carl Hiaasen, "Schools May Cut Officials," *Brevard Today*, March 29, 1974.
[68] James Feron, "Suburbs Pass More Budgets But Face Continued Fiscal Troubles." *New York Times*, June 13, 1977.
[69] Drucker, *op. cit.* p. 40.

traditional society and the patterns of functioning that govern the operation of any complex organization."[70]

What is often forgotten in the emotional process of staff layoffs is the concept of span of control.[71] This idea refers to the number of people a person can effectively supervise. However, Davis has pointed out that there are varying types of spans. He differentiates between *executive, operative* and *policy* spans.[72] An executive span usually ranges from three to nine subordinates whereas an operative span may be up to thirty persons. A policy span does not imply supervision in the usual sense of the word. Supervisors in large systems may have policy spans of hundreds of teachers and principals in terms of program responsibilities. A supervisor of Art may have program policy responsibilities for 150 art teachers and 22,500 students, yet the discussion in terms of layoffs may center around cutting this function instead of two art teachers who at most would see perhaps 300 students. The variable may be either an increase in class size and/or program reductions in art. The impact just in terms of the elimination of policy span responsibilities in one system when it anticipated reducing 300 supervisors may be enormous.[73] Yet boards, citizens, and teacher unions often talk of performance of tasks as if there were no differences, and as if the implementation of policy level responsibilities was not an equally if not more important function than many others in the grim layoff picture.[74]

It is suggested that the functional differences in personnel must be carefully examined in terms of the differences in spans of control prior to accepting either the organic management fallacy, or the proximity logic which so often is accepted without question by funding agencies.

The growing trend towards minimum competency based instruction reinforces a disenchantment by some professionals and the general public with "organic management." Says the assistant superintendent of one of the nation's largest school systems, "The open classroom is a cop-out. All those reformers used to say," 'God made this child, and there should be natural unfolding of his capabilities.' That's a bunch of

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[70] Donald R. Moore, et al., "Strengthening Alternative High Schools," *Harvard Educational Review*, 42:3 (August, 1972) p. 336.

[71] See Rolf E. Rogers, "Factors Affecting The Optimal Size of the Span," in *Organizational Theory* (Boston: Allyn and Bacon, Inc., 1975) pp. 78-83.

[72] R. C. Davis. *Fundamentals of Top Management* (New York: Harper and Row, 1951) as cited in A. C. Filley and R. J. House. *Managerial Process and Organizational Behavior* (Glenview, Illinois: Scott, Foresman and Company, 1969 p. 283. The term "policy span" was developed by Keith Davis in *Human Relations at Work* (New York: McGraw-Hill, 1962).

[73] Leonard Buder, "School Supervisors Avert Layoffs by Giving Up Cost-of-Living Raise," *New York Times*, September 9, 1976.

[74] In protesting cuts parents made no differentiation in functions. See Deidre Carmody," 400 Protest Proposal for Cuts at Queens Schools," *New York Times*, March 26, 1974.

crap. God may have made children, but without the help of people they will never develop. Society is demanding that our students be a certain way."[75]

The Functions of Supervision and the Functions of Management

To adequately explain to the public the functions of instructional and supervisory middle management, superintendents must re-examine the functions of management in general. The basic functions are:

(1) To define the mission of the organization;
(2) To effectively and efficiently utilize and configure resources to accomplish that mission;
(3) To evaluate feedback from the implementation of the resources to make whatever adjustments may be necessary to attain that mission. In the last decade school management has undergone tremendous changes. Whereas educational organizations used to be characterized by open-ended mission statements and vague purposes, more and more school systems have begun a process to explicitly define their missions in measurable terms. Those that have not may be forced to adopt state mandated minimum competency standards as their mission.

As the level of specificity has begun to increase for school organizations, so has the necessity to re-examine and re-assign functions. Feedback from supervisors and instructional support personnel indicate that their responsibilities have increased for making decisions about resource allocation and configuration and that closer control is required.[76] More probing questions are being asked of supervisors by top level management about what is adequate or inadquate performance of staff, schools, and programs. The shift has meant a move away from the notion of the supervisor as a benign and often silent partner to a stronger managerial figure, one who must carry out part of management's functions, i.e., definition, allocation, supervision for results, control, and utimately accountability. As one superintendent candidly observed, "I don't need anybody in supervision who can't evaluate personnel, materials, students, or programs."

The reluctance of some supervisors to accept what may be called *the quality control* function in school systems erodes considerable support

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[75] Lawrence Feinberg, "Competency Tests Set in 26 Schools," *Washington Post*, August 1, 1977.

[76] That the supervisor is also more visible than before is acknowledged in Leonard Buder, "City Refining School Norms." *New York Times*, May 4, 1975.

they may have from top educational management. Clearly the supervisor and instructional support personnel at the central level are being pitted against the interests and agendas of the teacher unions in terms of hard questions about dollars being spent on instruction and the degree to which they make some noticeable impact on learning. That the investment of programmatic dollars make a difference to learners is becoming the domain of the instructional supervisor and administrator.

It is *that* function that can be made visible and which can generate considerable support from the public. Programs which demand more specific results take *more* supervision not *less*, particularly in determining the most appropriate combinations of staff, time, and materials to obtain the desired results. If the English program requires that each student prior to graduation must write an error free essay before he or she can graduate, this will require extensive supervision and management responsibilities to be exercised to deliver this outcome.[77] While school principals have undertaken some of these responsibilities, they are still generalists in most subject areas and they have responsibilities for only their individual buildings.

Traditionally middle management personnel have served as mediators between top level management and their subsequent decisions and classroom teachers and principals. Supervisors were expected to carry out the policy implications of decisions. However, the absence of clear cut objectives of school systems has made it impossible to design an effective supervisory quality control function. "Thus, although the rhetoric of supervision has great currency in the vocabulary of school administrators, the practice of supervision and the definition of what it entails continue to be ill defined."[78]

Furthermore as sociologist Dan Lortie observes in his penetrating book on classroom teachers, teachers do not know how to collectively respond to calls for accountability.[79] Furthermore, they appear to believe in the notion of "organic management."

> "What teachers consider desirable change can be summed up as 'more of the same'; they believe the best program of improvement removes obstacles and provides for more teaching with better support. They want arrangements to 'unleash' their capacities. Their approach is implicitly conservative; in assuming that current instructional tactics are adequate if properly supported, the blame

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[77] Bart Barnes, "Students, Teachers Bow to Task of Attaining Perfect Prose," *Washington Post*, November 28, 1977.

[78] Robert Dreeben, "The School As a Workplace," in *Second Handbook of Research on Teaching*, Robert M. V. Travers (ed.) (Chicago: Rand McNally, 1973) p. 453.

[79] Lortie, *op. cit.* pp. 80-81.

for deficiencies is laid upon the environment. Remedies lie in changing the environment, not in finding more efficacious ways to instruct."[80]

Neither teachers nor their unions can assume the quality control function, the function demanded by the public and the function which accompanies the basic purposes of management as outlined.[81] It is still the board of education with its legal and visible responsibility to account to the public for results or the lack of results, with the delegated functions to the superintendent of schools and middle management supervisory staff, which must exercise the quality control function in the schools.

The Climate for Quality Control

The concept of quality control is a powerful tool for greater specificity and sensitivity to programs of instruction. The process will not occur, however, in a climate of impartiality. Climate refers to the overall tone of norms present in a school system or school. English has divided climates into two basic types, punitive and humanistic.[82] If the concept of quality control as exemplified in the idea of curriculum mapping were to be part of the fabric of punitiveness we would envision a different utilization of the idea than that for a humanistic climate. Curriculum mapping as a process can lead to greater lateral discussion and decision making than in the past because it creates a vehicle for the specific articulation of curriculum both horizontally and vertically within a school or school district.

Ideally, quality control as part of curriculum mapping should be utilized by teachers across grade levels and within grades. A mapping procedure can be a strong stimulus. However, mapping could become a sort of political football if cross currents of suspicion already exist in a school or school district about the ultimate purposes of the activity. It is suggested that some discussion and analysis of the school system's work ethic, norms, and climate be considered prior to actually undertaking implementation of mapping as an aspect of quality control.[83]

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[80] *Ibid.* p. 209.

[81] See also Fred M. Hechinger, "An Exploded Myth." *New York Times*, February 17, 1976.

[82] Fenwick W. English. *School Organization and Management* (Worthington, Ohio: Charles A. Jones, 1975).

[83] See also H. Russell Johnston, "A New Conceptualization of Source of Organizational Climate," *Administrative Science Quarterly* 21:1 (March, 1976) pp. 95-103.

Examining Organizational/Structural Changes for Improved Curricular Quality Control

The early sixties characterized a move towards de-centralization of many large urban school systems. Today the trend seems to be moving towards re-centralization.[84] The two variables most at play of a functional nature are how to balance coordination with the requirement for some economy of scale and specialization (technical expertise) to solve school system problems. Originally school systems centralized to gain expertise and specialization.[85] Centralization created a cadre of professional staff whose loyalties were not to the community or political norms, but to professional norms. However, centralization brought evils. The system could not respond well to change. Overstaffing became a problem.[86] The supervisor was originally brought into school districts because of the lack of expertise of the school principal or school masters.[87]

However, the move towards de-centralization does not seem to have worked much better. An examination of the original study for de-centralization in the New York City Schools called the Bundy Report[88] provides examples of the faith in "organic management." To quote a few examples of the promises of decentralization from that original report:

—"The children of the City of New York need a public school system that will liberate the talents, energies and interests of parents, students, teachers, and others to make common cause toward the goal of educational excellence."

—"It should restore the capacity of both lay and professional leadership to lead."

—"It should encourage initiative, in each school and locality as well as in the center."

—"It should encourage each school to develop a deeper understanding of the needs of the varied communities it is serving."

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[84] Detroit is re-examining the de-centralization issue. See Louis Cook, "People Out Fighting for School Power." *Detroit Free Press*, October 26, 1977.

[85] David Tyack. *The One Best System* (Cambridge, Massachusetts: Harvard University Press, 1974).

[86] David Rogers. *110 Livingston Street* (New York: Random House, 1968)

[87] Michael B. Katz, "The Emergence of Bureaucracy in Urban Education: The Boston Case, 1850-84," Chapter Two in *Class, Bureaucracy, and Schools* (New York: Praeger Publishers, 1971) pp. 56-104.

[88] McGeorge Bundy, *et al. Reconnection for Learning: A Community School System for New York City* (New York City: Mayor's Advisory Panel on Decentralization of the New York City Schools, 1967) 118 pp.

—"It should permit the flowering of a variety of curricula, school arrangements, and instructional strategies."

—"It should encourage constructive competition among schools and among localities. . . ."

—"It should guarantee a free flow of information. . . ."[89]

All of these beliefs in de-centralization as the response to the bureaucracy were based on the fallacy of creativity or organic management. What has occurred in New York City's de-centralized systems is continuing plunging pupil performance[90] warfare between the teacher's union and citizens for control of community boards of education,[91,92] and further proposals to eliminate the central board of education.[93] Officials in the de-centralized systems have also not been without their share of scandals.[94,95,96,97] In hearings before the Detroit Board of Education, "A minority of parents complained that their children can't read or do sums. Speaking for the UAW (United Auto Workers), Horace Sheffield argued that community control is only important if education improves, and that it is not happening."[98]

Perhaps an alternative approach for utilizing the expertise of instructional supervisors and coordinators as members of fluid task force teams in a system utilizing matrix management could improve the situation and provide a viable choice to re-centralization in the same manner as before. Matrix management is a space age management concept largely derived from the aerospace industries such as TRW.[99] It seems to have developed a structural answer to solving the problems

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[89] *Ibid.* p. 15.

[90] Leonard Buder, "Fresh Troubles Beset City's School System," *New York Times*, January 15, 1975.

[91] Mary Breasted, "School Elections More Politicized." *New York Times*, May 29, 1973.

[92] Ned Steele, ". . . but union stirs a fight in once-serene District 25," *New York Post*, April 28, 1977.

[93] Leonard Buder, "School Board Headquarters Shaken by Beame Commissioner Proposal," *New York Times*, June 5, 1977.

[94] George Goodman, Jr. "Fiscal Trustees Assigned to Queens School District," *New York Times*, March 23, 1974.

[95] Leonard Buder, "City To Take Over 3 School Regions in Fiscal Trouble," *New York Times*, October 29, 1974.

[96] Leonard Buder, "Inquiry Sought on Bronx School Funds," *New York Times*, December 10, 1974.

[97] Gordon F. Sander, "The Record of the Mini-Boards is Spotty," *New York Times*, June 5, 1977.

[98] Louis Cook, *op. cit.*

[99] Sheldon A. Davis, "An Organic Problem-Solving Method of Organizational Change," *Journal of Applied Behavioral Science*, 3:1 (1967) pp. 3-21.

of coordination versus specialization faced by every school system.[100] One possible application of matrix organization is shown for a large urban school system in Figure 7[101] in which a central office staff of 200 is redesigned to focus on system wide problems which are interdisciplinary in nature and which may at the present time be "falling through the cracks" of the existing table of organization. At the same time that a case is being made for the supervisor and instructional coordinator as the most likely personnel to be the quality control agents within school systems, we must likewise be candid about the fact that bureaucratic models do not appear to be very responsive to emerging needs of the field or the central office. Some sort of organizational alternative which forces greater effectiveness and at the same time is more efficient is called for. There are a wide range of experiences school system's have had with matrix management in the area of federal programs.

No proposal for quality control could defend the present organizational model of schools which has been shown to be so deficient in its operation and responsiveness. Therefore as boards, top educational management, and supervisors-coordinators consider more effective means to exercise the quality control function, they should also be thinking about alternative organizational responses as well as functions.[102]

The steps involved in moving towards a matrix structure closely parallel the same kinds of activities outlined for quality control of curriculum development. The first prerequisite is for the development of valid and measurable external yardsticks of effectiveness. The second necessity is separating the routine from the non-routine functions. At some point in time quality control should become routine except for the emergence of new kinds of curricular and instructional problems.[103]

Jay Galbraith's provocative book on matrix management presents a model of organization based upon its ability to process information.[104] As Galbraith develops this model he notes that there are four responses to the requirement to process more information. The first two

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[100] Leonard R. Sayles, "Matrix Management: The Structure With A Future," *Organizational Dynamics* (Autumn, 1976) pp. 2-17.

[101] Fenwick W. English, "Matrix Management in Education: Breaking Down School Bureaucracy," *Educational Technology* 17:1 (January, 1977) pp. 19-26.

[102] Leonard R. Sayles and Margaret K. Chandler. *Managing Large Systems.* (New York: Harper and Row, 1971)

[103] See J. Robert Hanson, "Potential Applications of Matrix Organization Theory for the New Jersey Department of Education," Unpublished paper (November, 1976) (Xeroxed) 30 pp.

[104] Jay Galbraith. *Designing Complex Organizations* (Reading, Massachusetts: Addison-Wesley, 1973).

are basically strategies of reduction. One way is to create *slack* resources. Slack resources are simply increases in people and time necessary to perform the work. So one response when information to be absorbed becomes very large is to hire more people and allow more time to perform the work. The second way slack is created, and we have seen a national example in declining SAT scores, is to reduce the performance standards of the work. An important point made by Galbraith is that if the managers do nothing, slack will happen automatically, usually the lowering of standards. Another response is to create self-contained units via de-centralization. The disadvantage of this approach is that economy of scale is lost as each de-centralized unit must replace and replicate various kinds of formerly centralized roles.

An organization can also increase its capacity to process more information by computerizing the payroll and other types of similar functions that may be considered routine. Still another way is via matrix structure where problem solving lateral decision making groups are created and given responsibility and authority to take on critical problems. This takes the load off the top level decision-makers. Matrix structure may be the break-through to utilizing the skills and expertise of the instructional supervisor and coordinator in newer more powerful ways than before. The visibility of the supervisor in the process will be critical to its success as well as the competence possessed by him or her to engage in system wide problem solving.

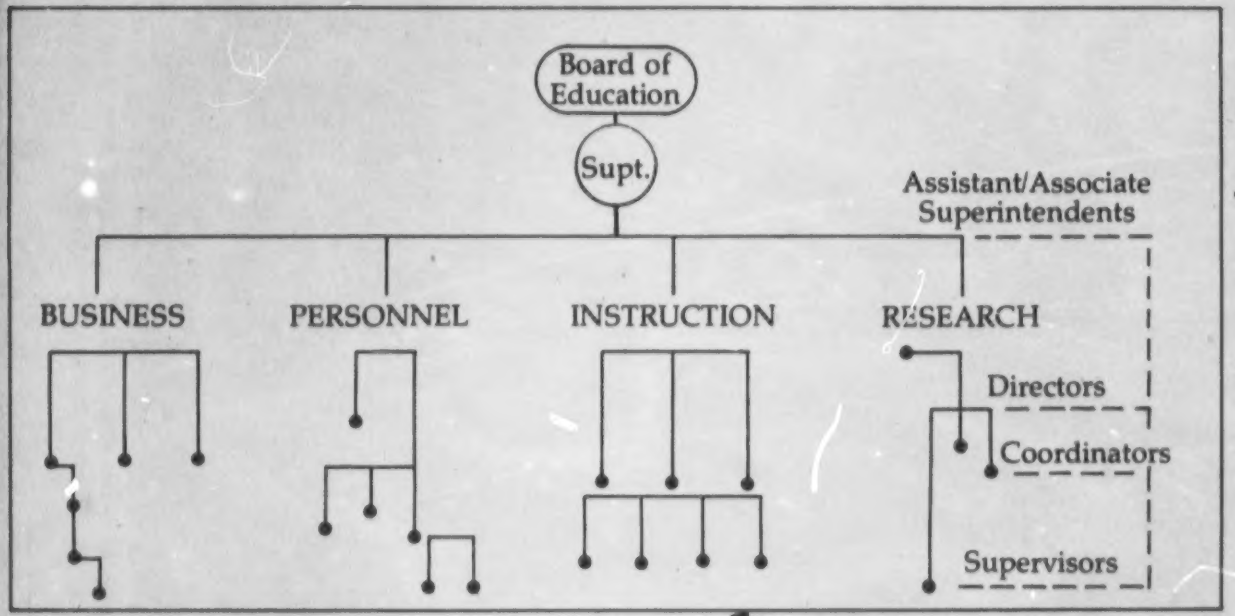
The creation of a permanent kind of "ad-hocracy" as described in *Future Shock* by Alvin Toffler[105] may be the school system organizational structure of the future. It may rid the system of the stultifying impact of hierarchy and its deadening effect upon flexibility and rapid responses. Furthermore it may force the system to use approaches which recognize problems outside of the traditional table of organization and which are able to draw upon the skills and knowledges of instructional supervisors and coordinators. In short, matrix management may be a structural and humanistic response to creating quality control within school systems. Coupled with the idea of curriculum mapping as a method upon and within which to engage in re-analysis of allocational decision-making, creative responses to the administration and supervision of the system on a large scale basis across the divisions of the school district become feasible to consider.

Quality control in curriculum development can become a functional and operational phenomenon which is part and parcel of a changed system rather than considered an extraneous piece on an already irrelevant system that is not working well. Unless quality control is

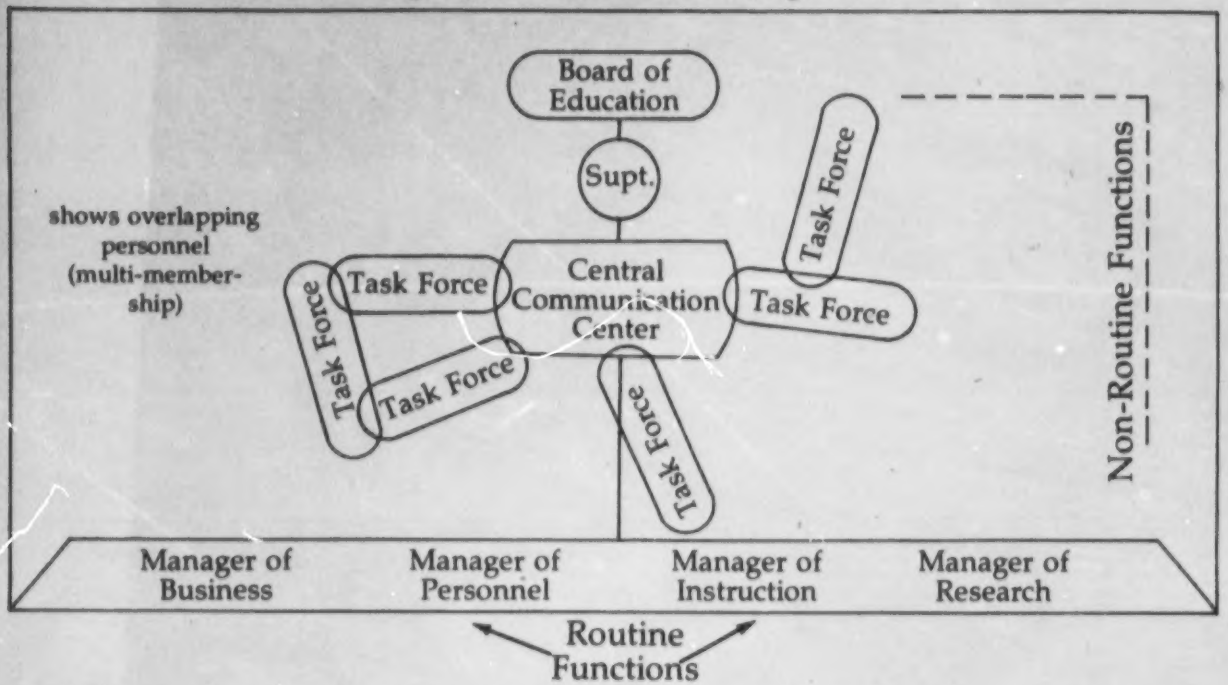
[105] Alvin Toffler. *Future Shock* (New York: Bantam, 1970)

Figure #7

Traditional School System Organization



Reorganization to Matrix Management



(Reprinted with Permission from *Educational Technology Publications*, Englewood Cliffs, New Jersey)
Fenwick W. English, "Matrix Management in Education. Breaking Down School Bureaucracy." January, 1977.

required both programmatically and structurally, improvement in curriculum development will continue to be largely idiosyncratic, unplanned, and serendipitous. Large scale improvement cannot occur systematically or be considered reasonable or feasible. Line and staff concepts are outmoded and cannot utilize the skills of some of our most talented instructional experts. Rather than further reduce the effectiveness of our school systems by a process of elimination, it is believed a functional analysis of the work to be done by the system will reveal the necessity of their continuation and the requirement for reorganization which offers an alternative to the centralization/decentralization debates.

While there may be those who insist that schools or schooling cannot promote or program educational outcomes, they fail to grasp the fact that all of schooling and teaching involves decisions which assume that teachers do something and that they do make a difference. Without that assumption there would be no societal purpose for schools and certainly not for institutionalized teaching. By the simple fact that any teacher has to decide what to include or exclude as a matter of the content and/or the interactive process of curricular implementation, curriculum has to be conceptualized as a means to the ends of reaching ranges of desired outcomes. In the words of Ralph Tyler, "Curriculum development is a practical enterprise, not a theoretical study. It endeavors to design a system to achieve an educational end and is not primarily attempting to explain an existential phenomenon."[106]

The function of curriculum is to improve upon randomness that certain outcomes desired to be learned by young human beings are acquired. Curriculum is a sort of genetic structure that carries the institutionalized facts, myths, biases, attitudes, concepts and skills of the larger society. It is largely an imperfect transmittal but a process capable of being refined and improved to not only be more efficient but more humane. There is nothing humane about failure in the schools. To eliminate the practices of schools which are not humane a much more planned approach to curriculum development is required.

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[106] Ralph Tyler," Specific Approaches to Curriculum Development," in *Strategies for Curriculum Development*, Schaffarzick and Hampson, *op. cit.* p. 18.

Re-Conceptualized Functions of the Administration and Supervision of Curriculum and Instruction

The essential function of the administration and supervision of curriculum and instruction has been redefined to include quality control, not within an outmoded and perhaps punitively oriented work and structural climate, but within a humanistic, goal-oriented, flexible work structure of a matrix type.

The future of the administration and supervision of curriculum and instruction is tied to its ability to perform the quality control function in new settings and be responsive to new challenges. The challenge to produce results or outcomes is substantially different than the challenge to contain differences of students in factory like models of schools or to expose students to uniform doses of instruction. It is believed that the challenge is to promote diversity because that is the only way schools can truly be responsive to the many students who must be educated to take their places as productive members of society.[107]

For quality control to be effective, the classroom teacher must be considered an integral partner in the developmental process because the teacher is the pacemaker and gatekeeper of the interactive curriculum, the essential bridge between the inertia of the content and the vitality of the learner and the learning process. As Whitehead is said to have observed about inert ideas and the dangers of receiving them into the mind without having to question them, knowledge did not keep any better than fish if received in this way.[108] For this reason the classroom teacher cannot be relegated to a tertiary role, but must be considered a full-fledged partner in any quality control process. This is what is meant when some administrators have said that no curriculum was "teacher proof."

Schools and students are at once means and ends simultaneously. Some compatibility between individual development and social progress has to be assumed as common in order for schooling to make any sense. That these two are mutually reinforcing is also assumed. Quality control is therefore a means to insure that as far as curriculum development is concerned, it is defined as efficient and effective in

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[107] Roger A. Kaufman, Robert E. Corrigan, and Donald W. Johnson, "Toward Educational Responsiveness to Society's Needs: A Tentative Utility Model," *Journal of Socio-Economic Planning Science*, August, 1969.

[108] Alfred N. Whitehead. *The Aims of Education and Other Essays* (New York: Macmillan Company, 1959).

terms of both individual fulfillment and societal perpetuation, and at a cost that is responsive to both indices. Quality control can provide a process of curriculum development that is malleable, governable, improvable and responsive. That it begins with an accurate assessment of the status quo is essential, with the implicit understanding that even that assessment is based upon a fluid interpretation of reality. There are few, if any, absolutes in curriculum development, and a world of relative factors which impinge all at once all the time.

That educational supervision and administration of curriculum and instruction is required within changing contexts is essential to overall system responsiveness. Boards of education and superintendents should carefully consider such trends in determining what functions are essential and should be retained, and what functions can be altered or eliminated under current budgetary pressures. The administration and supervision of curriculum and instruction makes a difference, to students, teachers, parents, community and society, perhaps not in the same form as we have known it nor within the same work structure or climate, but without the quality control function being performed there is little hope that students, schools, and society can reach any kind of new equilibrium together.